A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT

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I hereby declare that the thesis entitled "**A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT**" submitted towards partial fulfillment of the requirements for the award of MD in Community Medicine degree to BFUHS is a compilation of original work carried out by me under the supervision of Dr. Sarit Sharma, Professor, Department of Community Medicine, Dr. Anurag Chaudhary, Professor & Head, Department of Community Medicine and Dr. Vikram Kumar Gupta , Professor , Department of Community Medicine. No part of this thesis has formed the basis for the award of any degree previously.

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MY

GRANDMOTHER

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ABBREVIATIONS

CH	Civil Hospital
CHCs	Community Health Centers
CME	Continuing Medical Education
CRED	Centre of Research on Epidemiology of Disaster
CS	Civil Surgeon
DH	District Hospital
DM	Disaster Management
EMO	Emergency Medical Officer
FEMA	Federal Emergency Management Agency
GDP	Gross Domestic Product
GSDP	Gross State Domestic Product
GOI-UNDP DRM	Government of India - United Nations Development Program - Disaster Risk Management
HCFs	Healthcare Facilities
HCWs	Healthcare Workers
IPHS	Indian Public Health Standards
LT	Laboratory technician
MO	Medical Officer
MS	Medical Superintendent
NDMA	National Disaster Management Authority
NS	Nursing Staff
PAHO	Pan American Health Organization
PHCs	Primary Health Centers
PM CARES	Prime Minister’s Citizen Assistance and Relief in Emergency Situations
PPE	Personal Protective Equipment
PSA	Pressure Swing Adsorption

SARS-CoV2	Severe Acute Respiratory Syndrome Coronavirus
SDH	Sub Divisional Hospital
SDMA	State Disaster Management Authority
UNDRR	United Nations Office for Disaster Risk Reduction
UNOCHA	United Nation Office for the Coordination of Humanitarian Affairs
USD	United States Dollar
WHO	World Health Organization

ABSTRACT

Introduction: Disasters have been occurring as long as the mankind has existed. Disasters, either natural or man-made, not only affect the health system but also alter the social stability and economic development of a country. The devastating effect of the recent crisis of COVID-19 has established the importance of emergency preparedness and response of hospitals.

Aim of study: To study the disaster preparedness of healthcare facilities at primary, secondary and tertiary care level.

Materials and methods- It is a cross sectional study which will be conducted in different healthcare facilities in district Ludhiana, Punjab. Healthcare facilities to be studied will include Primary Health Centres (PHCs), Community Health Centres (CHCs), Sub Divisional Hospitals (SDH), District Civil Hospital (CH/DH), private hospitals and medical colleges located in district Ludhiana**.**

Results: Total 17 HCFs were visited and 122 HCWs were interviewed. The mean age of HCWs was 39.63±10.53 years with range of 22 – 58 years. Both the private hospitals, the medical college and one PHC had the emergency plan. Incident command system was present in one private hospital and medical college. Communication system was well established in all the facilities. Availability of essential and supportive services was adequate in all HCFs except for PHCs and CHCs. Training regarding disaster management was conducted in 82.3% of HCFs and drills were conducted in 53% of HCFs. There was deficiency in the availability of manpower for emergency services at PHCs, CHCs, DH and SDH.

Conclusion: Proper disaster management safeguards the lives of both victim and rescuers; therefore, a disaster management plan should be made mandatory for all the healthcare facilities at all the levels. Disaster management should be included in curriculum of medical and paramedical students. Government should enforce disaster management and training as a part of orientations and CME programs and should emphasize on awareness about disasters and training on disaster management among public.

Keywords: Disaster Preparedness, health care facilities.

TABLE OF CONTENTS

S. NO.	TOPIC	PAGES
I	INTRODUCTION	1-8
II	AIMS AND OBJECTIVES	9
III	REVIEW OF LITERATURE	10-21
IV	MATERIAL AND METHODS	22-28
V	OBSERVATIONS AND RESULTS	29-83
VI	DISCUSSION	84-100
VII	SUMMARY AND CONCLUSIONS	101-105
VIII	LIMITATIONS	106
IX	RECOMMENDATIONS	107-108
X	BIBLIOGRAPHY	109-116
	APPENDICES – I - PROFORMA - MASTER CHART	
	APPENDICES – II - APPROVAL LETTER OF THESIS PLAN - PERMISSION LETTER FROM CIVIL SURGEON, LUDHIANA - THESIS PLAN	

LIST OF TABLES

Table No.	Title	Page No.
1	Details of healthcare facilities and number of healthcare workers interviewed in Ludhiana district	30
2	Distribution of healthcare workers as per designation	31
3	Distribution of healthcare workers as per gender	32
4	Distribution of healthcare workers as per age	33
5	Distribution of healthcare workers as per their experience in present healthcare facility	34
6	Distribution of healthcare workers as per total years of experience in healthcare profession	35
7	Status regarding emergency plan in healthcare facilities	36
8	Emergency preparedness in healthcare facilities	38
9	Availability of infrastructure in the healthcare facilities	42
10	Availability of infrastructure in emergency room in healthcare facilities	45
11	Availability of essential and supportive services in healthcare facilities	48
12	Display of signage for healthcare facilities	51
13	Details of availability of equipment in healthcare facilities	53
14	Availability of manpower for emergency services at PHCs	55
15	Availability of manpower for emergency services at CHCs	56
16	Availability of manpower for emergency services at sub-divisional hospital	57
17	Availability of manpower for emergency services at district hospital	58
18	Availability of manpower for emergency services at private hospital and medical college	59
19	Knowledge about emergency plan preparedness among healthcare workers as per healthcare facility	60
20	Knowledge about emergency plan preparedness as per category of healthcare workers	62

21	Knowledge about emergency command, triage and emergency code system among healthcare workers as per healthcare facility	64
22	Knowledge about emergency command, triage and emergency code system preparedness as per category of healthcare workers	66
23	Knowledge about training and drills among healthcare workers as per healthcare facility	68
24	Knowledge about training and drills as per category of healthcare workers	70
25	Knowledge about communication, surveillance and stockpile among healthcare workers as per healthcare facility	72
26	Knowledge about communication and surveillance and stockpile as per category of healthcare workers	74
27	Knowledge about surge capacity among healthcare workers as per healthcare facility	76
28	Knowledge about surge capacity as per category of healthcare workers	78
29	Suggestions to improve disaster management capacity and protocol in healthcare facilities	80
30	Suggestions about training and drills regarding disaster preparedness	82

LIST OF FIGURES

S.NO.	TITLE	PAGE NO.
1	Timeline of some major Disaster in India during 20th century	3
2	Chronology of major programs and policies in health and disaster risk management in India	5
3	Disaster Management cycle by NDMA	7
4	Distribution of healthcare workers as per designation	31
5	Distribution of healthcare workers as per gender	32
6	Distribution of healthcare workers as per age	33
7	Distribution of healthcare workers as per their experience in present healthcare facility	34
8	Distribution of healthcare workers as per total years of experience in healthcare profession.	35
9	Status regarding emergency plan and Incident command system in healthcare facilities	37
10	Status regarding communication system in healthcare facilities	40
11	Status regarding training and drills in healthcare facilities	41
12	Status regarding blood storage, sterile and emergency supply storage in healthcare facilities	44
13	Status regarding Infrastructure in emergency room in healthcare facilities	46
14	Status regarding Infrastructure in emergency room in healthcare facilities	47
15	Status regarding essential and supportive services in emergency room in healthcare facilities	50
16	Status regarding fire safety in emergency room in healthcare facilities	50

17	Status regarding display of signage in healthcare facilities	52
18	Status regarding equipment in healthcare facilities	54

INTRODUCTION

Disasters have been occurring as long as the mankind has existed. Hazards being part of our lives, it is very difficult to live in a completely risk-free environment. Human race has faced many disasters that have deeply affected them by causing communicable diseases, hunger, poverty and starvation deaths. There are three major world pandemics of plague recorded in medieval times in 541, 1347 and 1894 CE. Among them, the bubonic plague or the Black Death pandemic was responsible for death of one third of the world's population. As the human race moved forward to civilization and urbanization, it became more vulnerable to disasters.

United Nations Office for Disaster Risk Reduction (UNDRR) defines disaster as "a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts".[1]

Types/Classification of Disaster:

Disaster can be classified into natural or man-made disaster.

Natural Disasters are the natural processes that cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social as well as economic disruption and environmental loss. Example are earthquake, volcanic eruptions, landslides, avalanches, windstorms, tornadoes, storms, floods, droughts, hurricane, cyclone and epidemics.

Man Made Disasters are events occurring due to human activities which could be unintentional, but it lacks safety measures, rules and regulations. Most of these events are due to certain accidents and coordinated events like terrorist activities, bomb blast, wars, riots, technology related accidents at road, ship or air mode, chemical and nuclear explosion and industrial accidents. [2]

DISASTER: GLOBAL SCENARIO:

From the 1918 Spanish flu, the deadliest pandemic in human history infecting 500 million people to the unthinkable 1986 Chernobyl disaster, the world's worst nuclear accident, disasters have caused huge mortality and have become a constant drain on the health system. A total of 11,360 disasters were reported from year 1960- 2019 affecting 8.5 billion people worldwide.[3] Some major events were attack on World Trade Centre in 2001, Tropical cyclone Hurricane Katrina in 2005, Cyclone Nargis Myanmar 2008, Haiti Earthquake in 2010, Global Swine Flu Outbreak from March 2009 to December 2009, Japan earthquake and tsunami in 2011, Myanmar floods and landslides in 2017. [4] Disasters, either natural or man-made, not only affect the health system but also alter the social stability and economic development of a country.

DISASTER: INDIAN SCENARIO:

India, being a high density, resource - stretched and disaster-prone country, is no stranger to deadly events and has witnessed enough disasters like floods, earthquakes, cyclones and droughts. More than 50% of India's landmass is vulnerable to more than one hazard of high intensity because of its geo climatic and geopolitical condition. From 1910 - 2020, India has witnessed 736 recorded disasters leading to 6.5 million deaths. These disasters have affected more than 2.4 billion people and have caused loss of USD 125 million. [3]

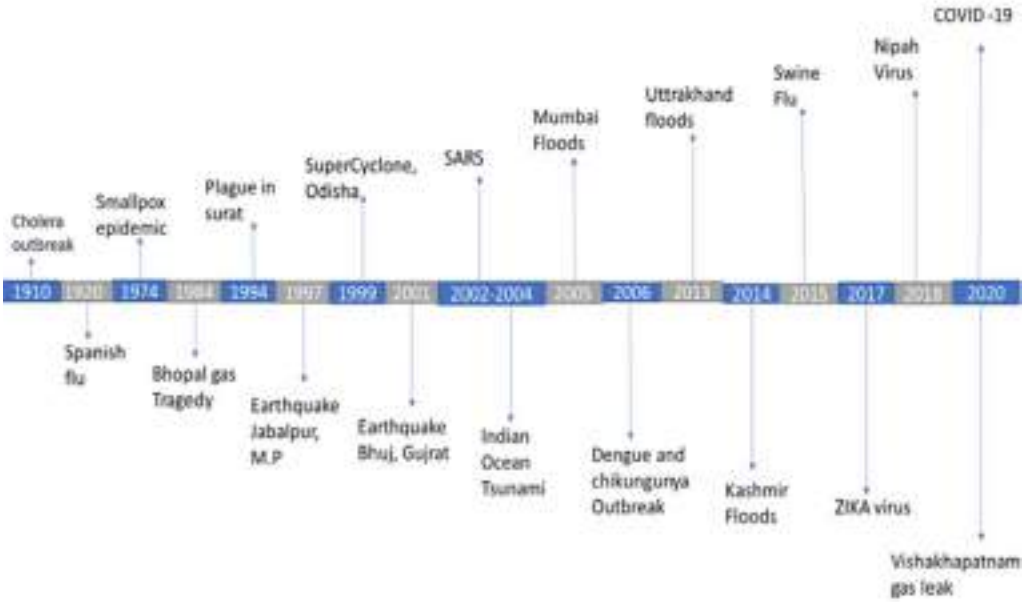


Figure 1 - Timeline of some major Disaster in India during 20th century.

All of the above Disasters shown in Figure 1 have challenged the preparedness and response capacities of the health system. Currently the whole world is battling with COVID-19 pandemic and even the most developed countries have failed to prevent its spread. In December 2019, Coronavirus disease caused by SARS-CoV2 (severe acute respiratory syndrome- Coronavirus 2) was first identified in Wuhan, China. WHO declared it a public health emergency of international concern on 30th January, 2020 and further a pandemic on 11th March, 2020.[5] In India, the first case was reported in Kerala on 27th January, 2020. As of 25th May 2022, there were 525 million confirmed cases with 6.2 million reported deaths globally and 43.8 million cases with 0.5 million deaths in India. [6]

The United Nation office for the coordination of Humanitarian affairs (UNOCHA) estimated that about 97 million additional people were pushed into extreme poverty in 2020 and nearly 274 million people will need humanitarian assistance in year 2022 owing to COVID-19 pandemic. At pandemic peak in 2020, school closure affected 1.6 billion students in 180 countries and despite of school reopening in 2021 globally more than 870 million students faced disruption to their

education due to COVID-19. According to Global Humanitarian Overview 2022, more than 1% of world's population was displaced forcibly and about 42% of whom were children. [7]

Role of Hospitals in Disaster Management:

Health systems at all levels have a central role in managing the risks and reducing the consequences of emergencies and disasters. Hospitals play a very crucial role and are frontline in providing necessary healthcare services to people during and after the incident. To secure a nation's public health, it is essential to be prepared and be able to respond and rapidly recover from the emergency.

Preparedness is defined by Federal Emergency Management Agency (FEMA) of US as a "Continuous cycle of planning, organizing, training, equipping, exercising, evaluating and taking corrective action in an effort to ensure effective coordination during incident response".[8]

During any emergency, the primary demand of health services for initial events is followed by a secondary peak in demand for healthcare services after a week or month which only adds up to an already burdened health system. To combat this, health system needs to be resilient which is defined as the ability to resist, absorb, accommodate and recover from the effects of shock in a timely and efficient manner, including restoration of its essential basic structure and function.[9]

Benjamin Franklin very rightly said that "By failing to prepare, you are preparing to fail".[10] To enhance the efficacy of the national health system to fight against disasters, the disaster management and preparedness plan must be incorporated into primary, secondary and tertiary healthcare levels.

The recent pandemic of COVID-19 has severely disrupted the health system worldwide. Testing, diagnosis and treatment have decreased for HIV, TB and Malaria etc. which are among the top ten causes of deaths worldwide. Antenatal-care visits have fallen by 43% and 23 million children worldwide missed basic childhood vaccines in the year 2021 as reported by UNOCHA. [7] The devastating effect of the COVID-19 pandemic has established the importance of emergency preparedness and response of hospitals.

Disaster Preparedness in India:

The Disaster management system is challenged by natural and man-made disaster which made the policy makers rethink and revise the Plan. It has evolved slowly from the epidemic disease Act 1897 to recent amendment in the Act in year 2020. [11] Guideline for hospital safety was issued by the National Disaster Management Authority (NDMA) in 2016 which was followed by Draft public health bill issued in 2017 for prevention, control and management of epidemics, bio-terrorism and disaster. [12]

National Disaster Management Authority (NDMA) is an agency of Ministry of Home Affairs, established in December 2005 and headed by the Prime Minister as the chairperson. It is responsible for making disaster related policies, Standard Operating Procedures, implementing guidelines, sharing and coordinating with every State Disaster Management Authority in order to maintain a good working balance between body, mind and soul approach towards health for disaster management. State government have primary responsibility towards disaster control within the country.[13]

Figure 2. Chronology of major programmes and policies in health and disaster risk management in India[14]

1897

The Epidemic Disease Act

1911

Indian Council of Medical Research

1966

Indian Standard Code for criteria for earthquake resistant design of structures

1987

Modern public health act

1995

National Institute of Disaster Management (training and capacity development programs)

2002

Indian Standard Code for criteria for earthquake resistant design of structures

2005 National Disaster Management Authority (NDMA) established
2007 NDMA guidelines on Medical Preparedness and Mass Casualty Management; Preparation of State Disaster Management Plans; Earthquakes
2010 NDMA guidelines on Management of Urban flooding; Tsunamis; Drought; Management of dead in the aftermath of disaster; incident response system
2016 NDMA guidelines for Hospital Safety
2017 Draft Public Health Bill (Prevention, Control and Management of epidemics, bio-terrorism and disasters)
2020 Amendment in the epidemic disease act for prevention of healthcare workers from violence.

Disaster Management Plan:

As per the guidelines of Government of India as well as United Nations Development Program - Disaster Risk Management (GOI-UNDP DRM) Programme (2002-2008), the hospitals should use a phase plan for three phases: Pre disaster phase, Disaster phase and post-disaster phase.

1. Pre disaster phase includes:

a) Planning: Most of the assessment and planning is done in this phase, the hospital plans are formulated and then discussed in a suitable forum for approval.

b) The disaster manual: The hospital disaster plan should be in document form and copies of the same should be available in all the areas of the hospital.

c) Staff education and training: Regular staff training by suitable drills should be undertaken in this phase.

2. Disaster Phase:

a) Phase of activation: Alert and notification of emergency.

b) Activation of the chain of command in the hospital.

c) Operational phase: In this actual tackling of mass casualties is performed according to the disaster/emergency plan.

d) Phase of deactivation: It is when the influx of mass casualty victims is not continuing to overwhelm the hospital facilities.

3. Post Disaster Phase: In this phase the activities of the disaster/ emergency phase are discussed and the inadequacies are noted for future improvements.[15]

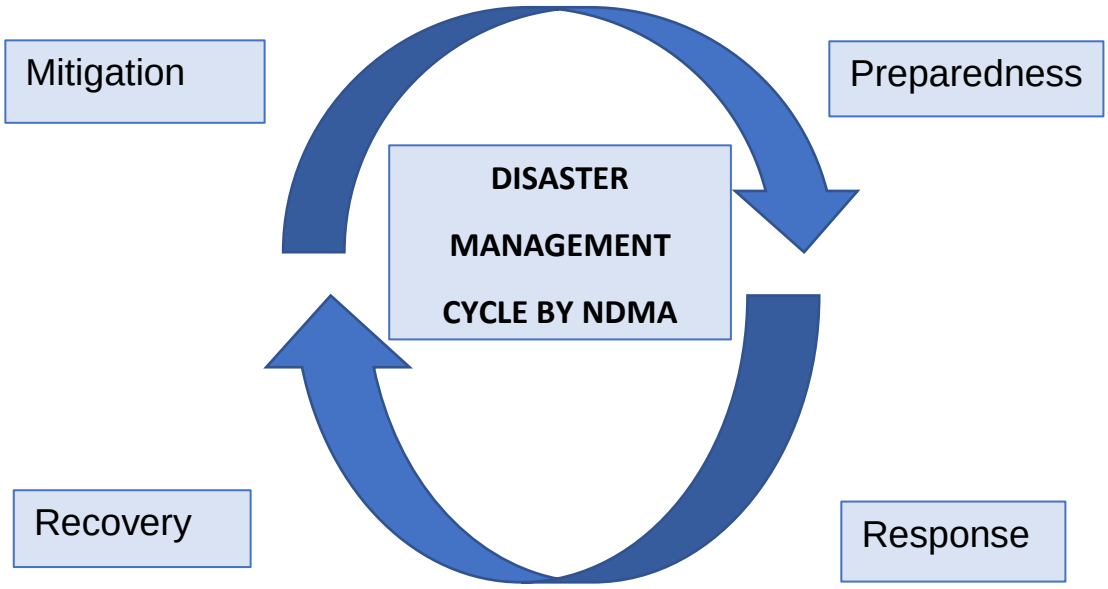


Figure 3: DISASTER MANAGEMENT CYCLE BY NDMA

Disaster management cycle is designed in such a way that its implementation will be easier and will be measured for its performance as follows:

a. Mitigation – Taking prevention for risk reduction for minimizing losses e.g., building codes, analysis of vulnerable areas and detection, mass education.

b. Preparedness – Planning towards response mechanism. e.g., warning alarm systems, training and evacuation drills.

c. Response – Efforts to reduce the hazards which were created by disaster attack e.g., search and rescue operation, relief measures during an emergency.

d. Recovery – Efforts put in for returning the community to normal conditions. e.g.,temporary housing or shelter, medical care and grants for restoring and reconstruction for betterment. [15]

Rationale for the study:

Any healthcare facility will need proper infrastructure to facilitate care during disasters. If healthcare workers are given education, training and drills in advance, they will act as the most receptive group during any emergency situations. Providing education to healthcare workers may lead to change in attitude and improvement in practices in whole of the community during disaster.

In a recent study conducted in India in 2020 at district hospitals and community health centres, showed that training and education on disasters like COVID-19 is limited to only 37.9% of healthcare workers and that the level of emergency preparedness is between low to medium in community health centres and district hospitals.[16] Similarly, another study conducted in year 2021 has shown that there is a need of a comprehensive and easily deployable disaster management plan and that mock drills are vital in preparing health staff for any kind of unanticipated incident. [17]

So, it becomes amply clear that disaster preparedness is built upon meticulous planning and continuous training in advance, to effectively respond to any disaster/emergency. Thus, the present study “A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT” was planned to study the disaster preparedness of healthcare facilities at primary, secondary and tertiary care levels and to assess the knowledge of healthcare workers regarding disaster preparedness.

AIMS AND OBJECTIVES

- To study the preparedness regarding disaster management in healthcare facilities at primary, secondary and tertiary care level in Ludhiana district.

- To assess the knowledge of healthcare workers regarding disaster preparedness in healthcare facilities.

REVIEW OF LITERATURE

Public Health

Countries worldwide face a broad and highly diverse range of threats to public health, including natural and technological hazards, infectious disease outbreaks, unsafe food and water, chemical and radiation contamination, wars, and the health consequences of climate change. For meeting these challenges, countries must strengthen their capacities for health emergency and disaster risk management by incorporating measures for prevention, mitigation, preparedness, response and recovery into their public health system. [18]

Public health as defined by World Health Organization (WHO) is “the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society”.[19] The Public Health Act formed in 1848 in England was the first step on the road to improved public health. [20] It was a milestone in history of public health that ensured to improve the sanitary conditions of towns in England and Wales. In India the first Epidemic Diseases Act was passed in 1897 to tackle the epidemic of bubonic plague. Since then, many states formulated their own public health laws, the 1939 Madras Public Health Act being the first of its kind in the country. [21] As the Epidemic Act 1897 was not sufficient to prevent and control the communicable diseases ‘The Disaster Management Act’ in 2005 was established. The Prime Minister of India is chairman of National Disaster Management Authority (NDMA) and at state level there is State Disaster Management Authority (SDMA) with Chief Minister of the State as the chairman.

Disaster

Disaster as, a word is derived from the 16th century French word “Desastre”, in which 'Des' means evil or ill and 'aster' means star. Accordingly, the expression of term disaster is an ‘evil star’. [22]

Centre of Research on Epidemiology of Disaster (CRED) which is a research unit of the University of Louvain, Belgium, defines a disaster

as “a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering”. [23]

Public health emergency is defined by World Health Organization as “an occurrence or imminent threat of an illness or health condition caused by bioterrorism, epidemic or pandemic disease or highly fatal infectious agent or biological toxin that poses a substantial risk of a significant number of human fatalities or incidents or permanent/ long-term disability”. [24]

As per World Health Organization/ Pan American Health Organization (PAHO), mass casualty incident is due to an emergency which requires the services of healthcare professionals to take care of large number of victims. It also requires special and additional emergency service arrangement to manage the additional surge or increase in number of patients. [25]

The Disaster Management Act (DM) 2005 defines disaster as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area. [26]

Types of Disaster

Disasters can be classified into natural or man-made. Further natural hazards can be classified into five major categories.

1) Geophysical: geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption. Example – earthquake, volcano and tsunami.

2) Hydrological: events caused by deviation in normal water cycle. Example- floods, landslide and wave action.

3) Meteorological: events caused by short-lived/small to meso-scale atmospheric processes (in the spectrum from minutes to days). Example- cyclone, storm surge, tornado, cold wave, extreme temperature, fog, frost, freeze, hail, heat wave, lightning and heavy rain.

4) Climatological: events caused by long-lived meso- to macro-scale processes. Example – drought and forest/ wildfire fires.

5) Biological: process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances. Example- epidemics: viral, bacterial, parasite, fungal infections and insect infestations.

Whereas man-made disasters include stampedes, fires, industrial accidents, oil spills, terrorist attack, nuclear explosion etc. [27]

Disaster can also be classified as internal and external disasters. Disaster which happens in house or within the hospital premises is called as internal disaster. It can be due to an accident within the premises of hospital, for example fire or bomb explosion within hospital. An external disaster can be the disaster outside the hospital premises within nearby vicinity in the community. Patients can be brought in the hospital in major numbers for the treatment.

Disaster Preparedness

Preparedness, as explained by United Nations Office for Disaster Risk Reduction (UNDRR), consist of the knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery. [28]

The DM Act 2005 define Disaster management as it involves continuous and integrated process of planning, organizing,

coordinating and implementing measures which are necessary or expedient for the following [26]

a. Prevention of danger or threat of any disaster

b. Mitigation or reduction of risk of any disaster or its severity or consequences

c. Capacity-building

d. Preparedness to deal with any disaster

e. Prompt response to any threatening disaster situation or disaster

f. Assessing the severity or magnitude of effects of any disaster

g. Evacuation, rescue and relief, and

h. Rehabilitation and reconstruction.

Hospitals and Disaster preparedness

Health systems at all levels have a central role in managing the risks and reducing the consequences of emergencies and disasters. The Pan American Health Organization (PAHO) and the World Health Organization (WHO) have defined a safe hospital as a facility whose services remain accessible and functioning at maximum capacity and within the same infrastructure immediately following a natural disaster. The term 'safe hospital' encompasses all health facilities, regardless of their level of complexity. A hospital is 'safe' when it enjoys the highest level of protection possible, when access routes to the health facility are open and when the water supply and electric power and telecommunications can continue supplying the health facility, thus guaranteeing continuity of operations and the ability to absorb the additional demand for medical care. [29]

The National Disaster Management Authority (NDMA) have developed the guidelines on Hospital Safety in 2016 with the vision that all hospitals in India will be structurally and functionally safer from disasters, such that the risks to human life and infrastructure are minimized. [30]

As per Government of India as well as United Nations Development Program, (2002-2008), hospitals play a critical role in saving lives and providing 24x7 emergency care services.[15]

Hospital Incident Command System

For effective preparedness and response during disasters, an efficiently functioning Hospital Incident Response System shall be established in each hospital. The hospital administration chooses the person who is competent for coordinating a hospital during a disaster. An emergency department physician with emergency medical services and disaster experience would be ideal, but it is not necessary that officer should be a physician, nurse, or administrator. The Incident Commander inherits authority directly from the hospital administration.

The hospital incident commander will direct all aspects of the hospital's participation in the disaster operation.

Incident Staff comprised of command and general staff. There are seven positions in an ideal incident command system. These are:

1) The operations chief who is overall in-charge of all patient care activities and supervises medical care, ancillary services and human services.
2) The logistics chief who is overall in-charge of all support services of the hospital and supervises the communication system, transportation, dietary services, stores, sanitation, water and power supply.
3) The planning chief who is over all in-charge of the manpower planning and is responsible for making immediate as well as extended rosters.
4) Public relations officer who is responsible for dissemination of all the information, medical or otherwise, to the relatives coming to the hospital as well as to the media.
5) The liaison officer who is responsible for maintaining a close liaison with the other agencies providing rescue and relief to the victims of disaster.
6) The security and fire officer who is responsible for activating and alerting all the security staff within the hospital and mobilizing them.

7) The finance officer who is responsible for allocation of emergency funds and facilitating emergency purchases when needed in the course of the disaster. [15]

Triage

Triage is the process of sorting injured people into groups based on the severity of their conditions, so that the most serious cases can be treated first. Triage system involves colour coding schemes as follows.

1) Red Tags– Immediate care and treatment needed for patients who has chances of survival.
2) Yellow Tags- Patients under observation who could be treated under normal circumstances.
3) Green Tags – Patients who can wait and can be taken care after taking care of patient with more critical injuries.
4) White Tags – Patient with least injuries, where doctor's care is minimum.
5) Black Tags – Deceased and for very extensive injuries that the patients have rare chances of survival under available care given.

Emergency Code system

Hospital emergency codes are used to inform hospital staff, information about various emergency situations in hospitals. It helps to restore the situation at the earliest after the incidence.

Some emergency codes are as follows

1) Code Blue – Cardiac Arrest
2) Code Yellow – External Disaster
3) Code Pink – Child abduction / Kidnapping
4) Code Purple – Physical assault in hospital either with patients, visitors or with hospital staff.
5) Code Black – Internal disaster - Bomb threat:
6) Code Red – Fire. It is an alarm, for fire inside the hospital. To protect patients, visitors, contractors and employees, to save lives and minimize property damage.

7) Code Orange – Evacuation for patients, all staff, visitors and patients will go to assembly point, by using fire exit and stairs.

Studies on Disaster preparedness of healthcare sector

Various studies have been done worldwide in the past to evaluate the preparedness of healthcare services in dealing with disasters and public health emergencies.

In United States, a survey by Treat K N et al (2001) was done for 30 hospitals about the hospital preparedness for chemical, biological and nuclear disaster. There were 22 rural hospitals and 8 urban hospitals. It was reported that none of the respondents believed their sites were fully prepared to handle a biologic incident. [31]

Rose M conducted a survey in the year 2002 about knowledge and awareness concerning chemical and biological terrorism to assess the knowledge base of healthcare providers at an urban medical centre in preparation for developing a workshop on domestic terrorism preparedness. A total of 291 nurses, physicians, nursing and medical students completed the knowledge and awareness survey. The knowledge scores of the participants were low, with less than one fourth of the knowledge questions answered correctly. [32]

In 2004, Krajewski and Sztanjnkrycer in their article on “Hospital Disaster preparedness in the United States: New issues, New challenges” concluded that each disaster is unique and each hospital is unique but the key element is universal i.e. hospital preparedness plan.[33]

In 2006, Kaji and Lewis conducted a study “Hospital Disaster preparedness in Los Angeles County” in 45 hospitals. It was concluded in the study that even though equipment and supplies were available but disaster preparedness and surge capacity was limited. [34]

During 2007 in United States, similar study on " Assessment of physician preparedness and response capacity to bioterrorism or other public health emergency events in a major metropolitan area” was done and the result showed that the emergency departments were

understaffed and were not in a position to provide the response during the disasters. [35]

Similar study was conducted in 2007 by Gilmore et al, on assessment of hospital disaster preparedness and level of knowledge regarding disaster preparedness in various healthcare departments. The target population was physicians, nurses, public health and mental health professionals, health educators, veterinarians, pharmacists, dental professionals, law enforcement and emergency/ fire personal. The findings revealed that the highest awareness and knowledge levels occurred with physicians, nurses and public health professionals. [36]

In 2008 the study “Disaster preparedness among Hong Kong nurses” was done by Fung et al. It was reported that the nurses are not prepared for disasters situations. However, they were aware of the need for that preparation. Hence the study concluded that disaster management techniques should be part of their course syllabus. [37]

A study was conducted (2012) by Phalkey R et al on “Assessing the functional capacity of the primary healthcare system in rural Orissa, India to respond to the devastating flood of September 2008”. In their study, an onsite survey was conducted in 29 primary and secondary facilities in five rural blocks of Jagatsinghpur district in Orissa state. A pre-tested structured questionnaire was used and it was reported that healthcare facilities were ill prepared to handle the flood despite being faced by them annually. It was conducted that the recovery phases of disasters should be seen as an opportunity to expand and improve services and facilities. [38]

Ogedegbe et al (2012) conducted a cross sectional study “Healthcare workers and disaster preparedness: barriers to and facilitators of willingness to respond” in a 775-bedded community teaching hospital in Northern New Jersey. The survey was administered to total of 5790 hospital workers (5600 via email and 190 paper based). It was concluded that more than 75% of the participants reported that they knew what to do in event of disaster and 93% of participants were willing to report for duty in event of disaster. [39]

Tang in 2015 did a study on “Evaluation of hospital preparedness for public health emergencies in Sichuan (China)” in which total of 47 hospitals above secondary level were included and an online questionnaire was emailed to the hospital’s emergency department director. It was concluded that emergency preparedness plan needed to be improved and that government should increase investment in the construction of infrastructure to sustain the preparedness capacity. In his study, the author proposed a sustainable public health emergency plan framework which had five basic domains: structure, staff, stuff, space and service. [40]

Ingrassia et al (2016) conducted a study “Hospital disaster preparedness in Italy” using WHO checklist and concluded that majority of the Italian Hospitals evaluated were not prepared to manage the potential disasters. [41]

Ncube and Chimenya (2016) conducted a study on Hospital disaster emergency preparedness at Onandjokwe Lutheran Hospital, Northern Namibia in South Africa. A self-administered questionnaire, semi-structured interview and a disaster plan checklist was used to evaluate the disaster preparedness of healthcare facility and healthcare workers. It was reported that HCW had fair knowledge and hospital had a draft disaster plan but there was lack of training and drills and infrastructure alignments. [42]

In 2016 a cross sectional study on “Evaluation of flood preparedness in public health facilities in eastern province, Sri Lanka” was conducted by Farley JM in which 31 healthcare facilities of Trincomalee district were included. In the study only 12.9% of health facilities had disaster preparedness plan and 12.9% of hospital staff was trained on disaster management. It was concluded that health system strengthening improves resilience to all hazards but should be improved with disasters in mind. [43]

In 2017, Swathi *et al* in their article “Disaster Management and primary healthcare: implications for medical education” concluded that primary healthcare system can play a crucial role in disaster management and

there is need to integrate and mainstream emergency medical assistance within the primary healthcare system.[44]

A study on “Emergency and disaster management training; knowledge and attitude of Yemeni health professionals” was done by Naser and Saleem in 2018. In this cross-sectional study, two types of questionnaire, a paper survey and an online survey on google drive, were used and total of 531 health professionals participated in it. In their study they revealed that the overall knowledge of health professionals was insufficient and only 32% had good knowledge regarding emergency and disaster preparedness. They also concluded that emergency and disaster preparedness should be included in the primary medical school curricula and medical education programs of the health facilities. [45]

Desai S conducted a study on “Disaster preparedness at selected hospitals of Navi Mumbai, India, identifying the gap areas and strategizing appropriate intervention measures” in 2018. In this study, 10 hospitals were selected and a total of 140 hospital staffs were included. In the study it was concluded that Disaster plan implementation must be made mandatory for all hospitals and non-compliance should be penalized.[46]

Dell’Era *et al* in their survey on “Hospital Disaster Preparedness in Switzerland Over a Decade” in 2019, did the assessment of the hospital preparedness by comparing the data with the data of 2006 survey. In their study they revealed that less than third of hospitals had a specific plan for nuclear/ radiological, biological/ chemical/ burns disasters. It was concluded that even though there was improvement in the preparedness plan but some specific situations were not covered and national guidelines, financial incentives and stimulations were lacking. [47]

A study was conducted by Apte and Khemar in Pune,India (2019) to assess the knowledge, attitude and practices score about disaster preparedness of 200 nursing staff. The study reported that the

knowledge level was good for their role however; the preparedness percentage was on the lower side comparatively but the attitude of nurses towards disaster preparedness was positive. [48]

Woyessa et al did a study on “Disaster preparedness in selected hospitals of Western Ethiopia and risk perceptions of their authorities” in 2020, in which disaster and emergency readiness was evaluated using a modified World Health Organization observation check list and it was conducted that although their authorities' risk perception of disasters was high, the selected hospitals were ill-prepared for the potential disasters. [49]

Ambat and Vyas (2020) did a study in Karnataka on “Assessment of preparedness against emerging infectious disease among private hospitals in a district of South India”. In this study, 54 private hospitals were selected and 5-6 participants were included from each hospital. In their study, it was revealed that there were gaps in the implementation of various plans and protocols and it was suggested that there is need for preparedness of the hospitals against the upsurge of emerging infectious diseases.[50]

In 2020, Sharma and Sharma did a study on “Hospital preparedness and resilience in public health emergencies at district hospitals and community health centres” in Rajasthan including 80 health officials of community health centers and district hospitals and an online questionnaire was sent to them. The results showed that training and education on disasters like COVID-19 is limited to only 37.9% of healthcare workers and that the level of emergency preparedness is between low to medium in Community health centers and District hospitals. It was concluded that it is time to assess and upgrade emergency preparedness.[16]

In 2021 a cross sectional study on “Disaster safety assessment of primary healthcare facilities in Kurdistan province, Iran” was conducted by Yari *et al* in which 805 primary healthcare facilities were evaluated using a checklist. The checklist evaluated functional, structural, non-structural and total safety of healthcare facilities which came out to be 23.8, 20.2, 42.3, 28.7 out of 100, respectively. It was revealed that

safety score of primary health facilities was unsatisfactory. It was concluded that majority of population depend on the PHC facilities for government services and thus government needs to adopt appropriate policies for improving structural safety. [51]

Gupta *et al* (2021) in a retrospective study “Critical Analysis of disaster management plan in a tertiary care hospital” analysed three different kinds of external disaster in a span of 45 days from July 2017 to October 2017 in Government Medical College and Hospital, Chandigarh. It was concluded that there is a need to strengthen the disaster management plan. [17]

MATERIALS AND METHODS

Nature of Study

The present study "A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT" is a cross sectional study. The study was conducted in the department of Community Medicine, Dayanand Medical College and Hospital, Ludhiana.

Study Area

The study was carried out in healthcare facilities which included Primary Health Centres (PHCs), Community Health Centres (CHCs), Sub Divisional Hospitals (SDH), District Civil Hospital (CH/DH), private hospitals and medical colleges located in district Ludhiana.

The total population of Ludhiana district is 3,498,739, out of which 2,069,708 people reside in urban area as per Census 2011. [52] There are total of 16 blocks in the district covered by one district civil hospital, 4 sub divisional hospitals, 11 CHCs and 31 PHCs. Apart from this, there are 2 medical colleges and multiple super specialty private hospitals and nursing homes.

Ethical Approval and Informed consent: The study protocol was submitted to the Institutional Ethics Committee of Dayanand Medical College and Hospital, Ludhiana for which approval was granted. Prior permission from the concerned head of institutes included in the study were obtained. Healthcare workers (HCWs) were included in the study after obtaining written informed consent.

SOURCE OF DATA

(a) A Thorough Visit was conducted by the investigator at selected health facilities to check the preparedness to deal with disasters and public health emergencies by using a checklist.

(b) Healthcare Workers (HCWs) which includes medical superintendent , senior medical officers, emergency medical officers, emergency nursing staff, laboratory technicians and pharmacists from the selected facilities at primary, secondary and tertiary level were interviewed by using a semi-structured questionnaire.

METHOD OF COLLECTION OF DATA

Inclusion Criteria

(a) Healthcare facilities situated within Ludhiana district belonging to primary, secondary and tertiary level where concerned heads of the institute gave permission to conduct the study.

(b) Healthcare workers who were willing to participate.

(c) Private Hospitals with bed capacity of more than 100.

Exclusion Criteria

(a) Healthcare facilities where concerned heads refused to participate in the study.

(b) Healthcare workers who were non-cooperative.

(c) Private hospitals with bed capacity of less than 100.

(d) Dental Colleges & Hospitals in Ludhiana District.

Duration of study

The study was conducted from 1st March 2021 to 28th February 2022

Sample size: About 25% of available healthcare facilities in Ludhiana district were selected by simple random sampling technique as shown in table below so that adequate representation of all healthcare levels can be done in the study. The minimum number of HCWs that were interviewed is mentioned in the table below and the maximum number was not more than 15 per healthcare facility.

Health Facilities in Ludhiana District	Total Number	Selected for the study	Minimum number of HCWs to be interviewed per facility	Total Number of HCWS interviewed
PHCs	31	8	4	32
CHCs	11	4	6	30
SDHs	4	1	8	9
District hospitals	1	1	8	12
Medical Colleges	2	1	8	14
Private Hospitals (with bed capacity more than 100 beds)	8	2	8	25
Total	57	17	96	122

Sampling technique

Simple random sampling technique was used for selection of healthcare facilities and purposive sampling for selection of participants within the healthcare facility.

Operational Definitions

(a) Disaster

It is a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering" [23]

(b) Disaster Management

The DM Act 2005 define disaster management as it involves continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for the following [26]

1) Prevention of danger or threat of any disaster
2) Mitigation or reduction of risk of any disaster or its severity or consequences
3) Capacity-building
4) Preparedness to deal with any disaster
5) Prompt response to any threatening disaster situation or disaster
6) Assessing the severity or magnitude of effects of any disaster
7) Evacuation, rescue and relief, and
8) Rehabilitation and reconstruction.

(c) Public Health Emergency

It is an occurrence or imminent threat of an illness or health condition caused by bioterrorism, epidemic or pandemic disease or highly fatal infectious agent or biological toxin that poses a substantial risk of a significant number of human fatalities or incidents or permanent or long-term disability [24]

(d) Emergency Plan

Emergency plan is a plan that prepares the staff and institutional resources of the healthcare facility for effective performance in different emergency situations.[15]

(e) Emergency command system

It is a unified command system which avoids the duplication of action by ensuring the response to specific emergencies, prioritizing response checklists and by making job action cards. Job action cards are the sheets which enable the medical staff to carry out their duties effectively by providing instructions to the individual in their respective areas. These job cards are colour coded and have instructions written on it. [15]

(f) Triage

Triage is the process of sorting out injured patients into groups based on the severity of their conditions, so that the most serious cases can be treated first.[30]

(g) Emergency code system

Emergency codes are coded messages usually announced over a public address system to alert the staff and to inform them about various emergency situations in hospitals.

(h) Stockpile

It is a large accumulated stock of goods or materials, especially one held in reserve for use at a time of shortage or another emergency.

(i) Surge capacity

Surge capacity is known as the ability of a healthcare system to expand beyond its normal capacity to fulfil the increased demand in an emergency situation.[30]

(j) Internal disasters

Disaster situations occurring inside the hospital. Example - fire inside the hospital, collapse of hospital building, release of chemicals or radiation, hostage situations, or bomb threats etc

(k) External Disasters

Disaster situations occurring outside the hospital in which the hospital is expected to assist, such as in terms of response and recovery

activities. Examples: hurricanes, tornados, floods, storms, earthquakes, train derailments, plane crashes, power outages, terrorist attacks, riots, epidemics etc.

(l) Epidemic Disease Act 1897

It is colonial-era Epidemic Diseases Act consisting of four sections and aims to provide for better prevention of the spread of dangerous epidemic diseases. [11]

Procedure of Data Collection

A prior permission to visit the health facility was taken from the concerned head and a date of visit was fixed. Multiple visits to each facility were done to complete the data collection. On the preselected date, the investigator visited the healthcare facility to collect data regarding disaster preparedness. Firstly, a thorough visit using the checklist was conducted at the health facility to check the preparedness to deal with disasters and public health emergencies. After completing the round, face to face interview of healthcare workers which included medical superintendent, senior medical officers, emergency medical officers, emergency nursing staff, laboratory technicians and pharmacists, was done in the facility using a pre-tested, semi-structured questionnaire. In depth interview was done to assess their knowledge about disaster preparedness. Data so collected were recorded and analysed.

Tools for Study:

The Study Instrument is divided into two parts.

PART-1	PART-2
Includes Checklist regarding the disaster preparedness of healthcare facility.	It contains interview schedule of HCWs to assess their knowledge regarding disaster preparedness in healthcare facility and also to seek suggestions for improving the preparedness through a semi-structured questionnaire

Description of each part is as below:

PART-1

CHECKLIST

Sr.No.	Component and its content
1.	Emergency preparedness plan • Documented plan • Printed files • Details of plan • Job action cards
2.	Infrastructure • General • Emergency facility • Power and water supply • Ambulance services • Fire safety • Security system
3.	Signage • Emergency entry and exit • Fire exit • Hazard and caution signs • Helpline numbers
4.	Equipment • Emergency and fire safety • Blood transfusion equipment • Laboratory equipment
5.	Manpower (As per IPHS Guidelines) [53] • Administrative staff • Nursing staff • Paramedical staff • Class IV employees

PART-2

QUESTIONNAIRE

Section	Components and its content
1	Basic Information – name, address of facility, type of facility, designation of the respondent.
2	This section is applicable to all the HCWs and it includes questions regarding: • Emergency Plan • Emergency command system • Triage and emergency code system • Training and drills • Communication and Surveillance • Stockpile • Surge capacity
3	This section of the proforma includes questions regarding disaster preparedness that will be asked only to the Medical Superintendent / Senior Medical Officer / Emergency Medical Officer/ Medical Officer.
4	This section is only applicable to the nursing staff of the health facility
5	This section is applicable only to the laboratory Technician.
6	In this section questions related to the disaster preparedness will be asked to pharmacist.

OBSERVATIONS AND RESULTS

The present study “A study on disaster preparedness among healthcare facilities in Ludhiana district” was carried out in different healthcare facilities (HCFs) of primary, secondary and tertiary level. Total 17 HCFs were visited and 122 healthcare workers (HCWs) were interviewed. The observations and results are presented under following headings.

Section I: Demographic profile

Section II: Disaster preparedness checklist

Section III: Knowledge regarding disaster preparedness among healthcare workers

A. Emergency plan
B. Emergency command, triage and emergency code system
C. Training and drills
D. Communication, surveillance and stockpile
E. Surge capacity

Section IV: Qualitative analysis

SECTION 1: DEMOGRAPHIC PROFILE

Table 1: Details of healthcare facilities and number of healthcare workers interviewed in Ludhiana district

S.No	Name of the healthcare facility	Minimum number of HCWs to be interviewed per facility	No. of HCWs interviewed
1	PHC Hambran	4	4
2	PHC Mullanpur	4	5
3	PHC Boparai kalan	4	3*
4	PHC Talwandi	4	4
5	PHC Mansooran	4	4
6	PHC Mehdoodan	4	3*
7	PHC Ghawaddi	4	4
8	PHC Ladhowal	4	5
9	CHC Sahnewal	6	7
10	CHC Sidhwanbet	6	7
11	CHC Pakhowal	6	9
12	CHC Dehlon	6	7
13	Civil Hospital	8	12
14	SDH Raikot	8	9
15	Guru Teg Bahadur Hospital	8	14
16	Fortis Hospital	8	11
17	DMC Hospital	8	14
	Total	**96**	**122**

***Minimum number could not be interviewed because of vacant post of laboratory technician at one PHC and pharmacist at another PHC.*

Above table shows that 8 PHC (Primary Health Centre), 4 CHC (Community Health Centre), 1 SDH (Sub divisional Hospital), 1 DH (District Hospital), 2 private hospitals and 1 medical college were covered as per the minimum requirement in the study. A total of 122 healthcare workers were interviewed for the study.

Table 2: Distribution of healthcare workers as per designation

Designation	Number	Percentage
MS/SMO/EMO/MO	36	29.5
Nursing staff	33	27.0
Laboratory technician	24	19.7
Pharmacist	29	23.8
Total	**122**	**100**

Table 2 shows the distribution of healthcare workers as per their professional status. Out of 122 healthcare workers, 29.5% were doctors (medical superintendent (MS)/ senior medical officer (SMO)/ emergency medical officer (EMO)/ medical Officer (MO), 27.0% were nursing staff (NS), 19.7% were laboratory technician (LT) and 23.8% were pharmacists.

Figure 4: Distribution of healthcare workers as per designation

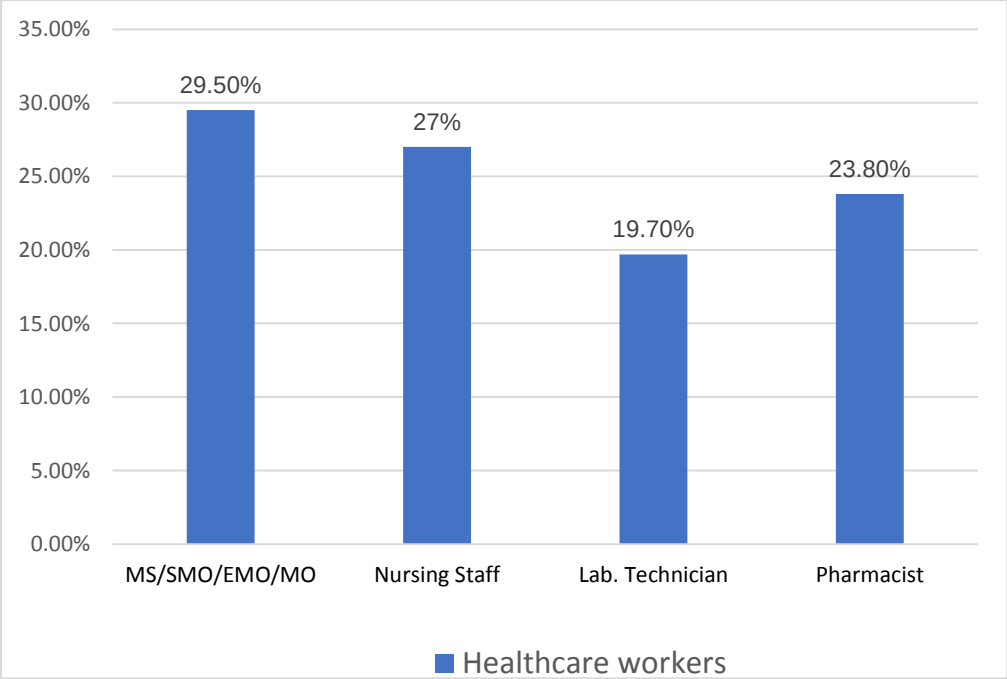


Table 3: Distribution of healthcare workers as per gender

Gender	Number	Percentage
Male	49	40.2
Female	73	59.8
Total	**122**	**100**

Gender wise distribution of healthcare workers was studied and females were more in number (59.8%) as compared to males (40.2%).

Figure 5: Distribution of healthcare workers as per gender

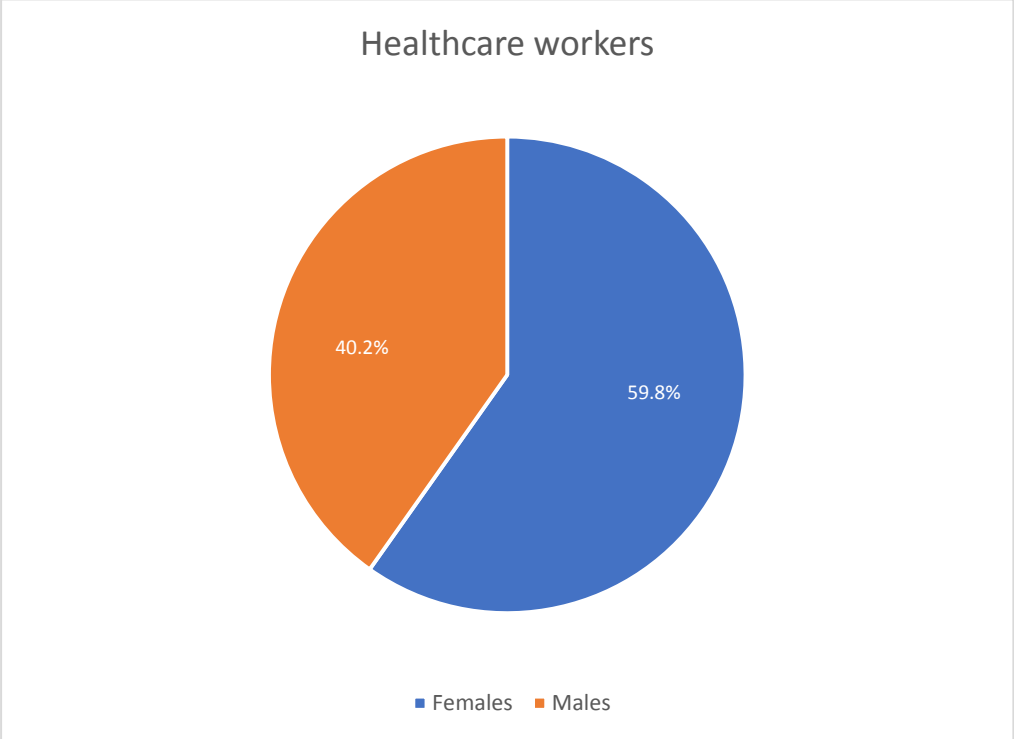


Table 4: Distribution of healthcare workers as per age

Age (years)	Number	Percentage
20-30	25	20.5
31-40	52	42.6
41-50	17	13.9
51-60	28	23.0
Total	**122**	**100**

In the present study, the mean age of healthcare workers was 39.63±10.53 years with range of 22 – 58 years. Maximum healthcare workers were in the age group of 31-40 years (42.6%) followed by 22.9% in 51-60 years, 20.5% in 20-30 years and 13.9% in 41-50 years age group.

Figure 6: Distribution of healthcare workers as per age

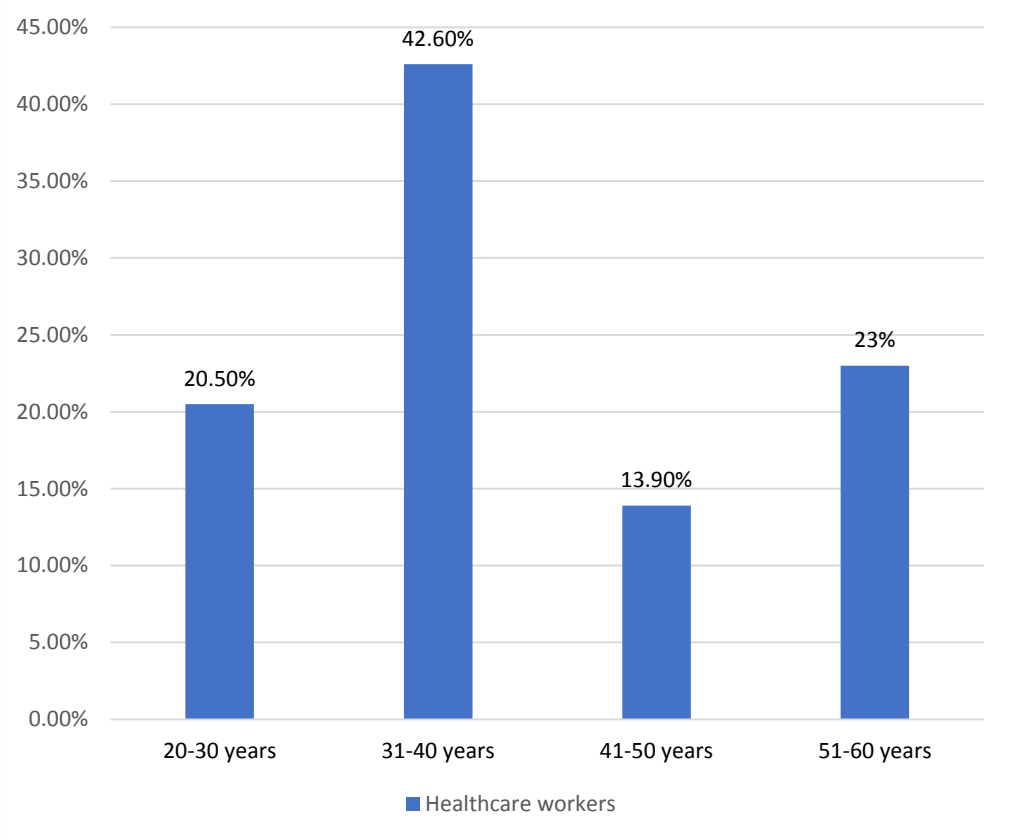


Table 5: Distribution of healthcare workers as per their experience in present healthcare facility

Experience at present facility (years)	Number	Percentage
<1	22	18.0
1-10	71	58.2
11-20	19	15.6
>20	10	8.2
Total	**122**	**100**

Distribution of healthcare workers as per their experience is shown in table 5. Out of total maximum HCW were having an experience between 1- 10 years (58.2%). There were 18% of HCWs having an experience of less than 1 year while rest of HCWs had an experience for 11 years and more (24%).

Figure7: Distribution of healthcare workers as per their experience in present healthcare facility

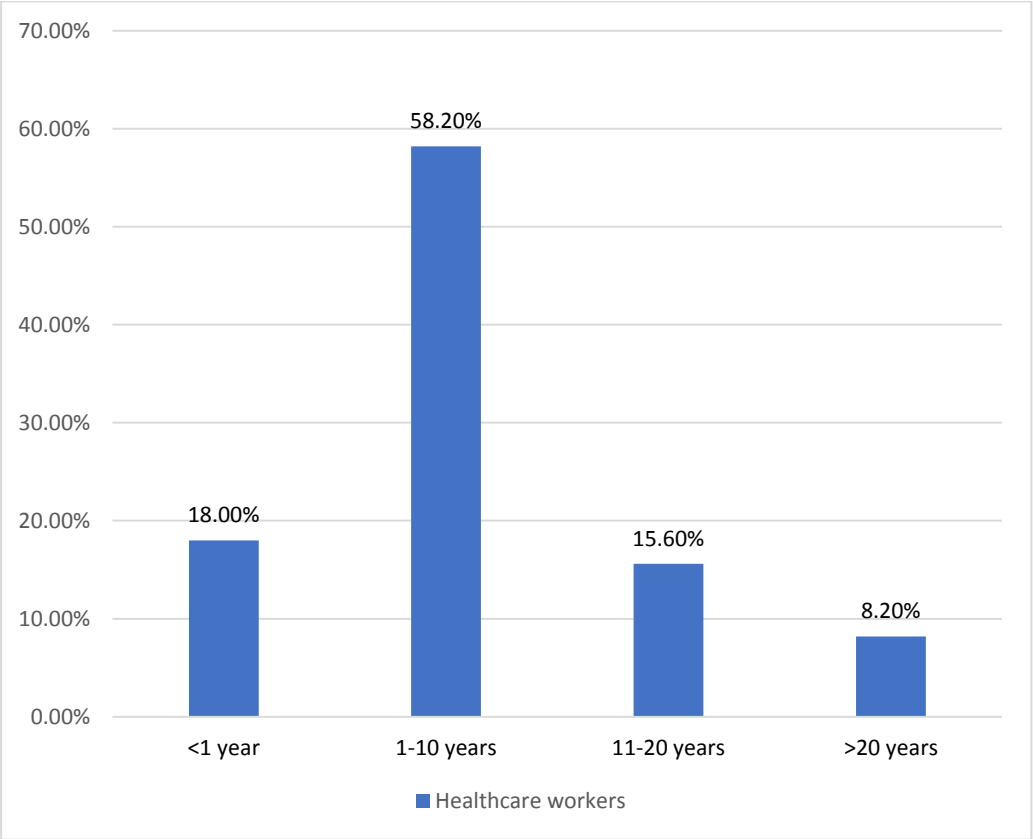
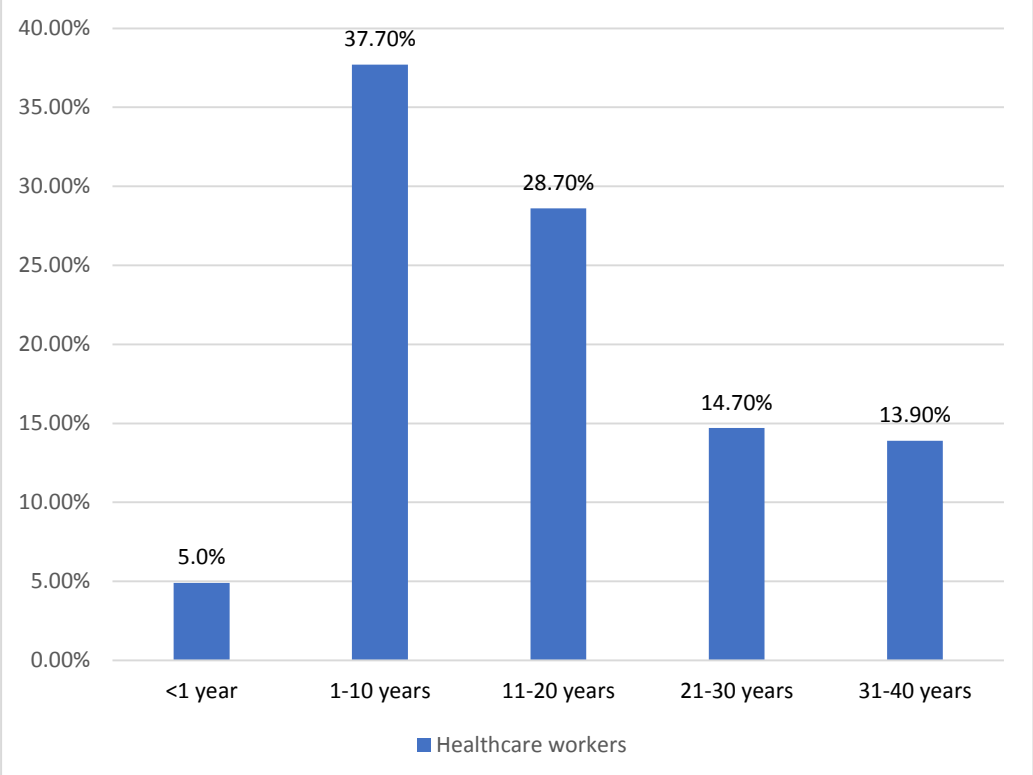


Table 6: Distribution of healthcare workers as per total years of experience in healthcare profession

Total experience (Years)	Number	Percentage
<1	6	5.0
1-10	46	37.7
11-20	35	28.7
21-30	18	14.7
31-40	17	13.9
Total	**122**	**100**

Table 6 shows distribution of healthcare workers as per total years of experience in healthcare field. There were 5.0% of HCWs having a total experience of less than one year while 37.7% had experience for 1-10 years and rest 57.3% were having experience for 11 years or more in healthcare profession.

Figure 8: Distribution of healthcare workers as per total years of experience in healthcare profession



SECTION II: DISASTER PREPAREDNESS CHECKLIST

Table 7: Status regarding emergency plan in healthcare facilities

Status in healthcare facility	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
Having an emergency plan	1(12.5)	0	0	2(100)	1(100)
Plan documented in writing	1(12.5)	0	0	2(100)	1(100)
Plan accessible to all staff	1(12.5)	0	0	2(100)	1(100)
Plan includes arrangement for rapid transfer of emergency department patient to in-patient	1(12.5)	0	0	2(100)	1(100)
Plan includes arrangement to cancel non-emergent services	1(12.5)	0	0	2(100)	1(100)
Printed charts and copy of all relevant guidelines regarding public health emergency management given to the medical staff	1(12.5)	0	0	2(100)	1(100)
Plan evaluated and updated in last 5 years	0	0	0	2(100)	1(100)
Have Incident command system	0	0	0	1(50)	1(100)
Have colour coded job action cards	0	0	0	1(50)	0

**Figures in parentheses indicate percentages.*

Table 7 shows the details of emergency plan in healthcare facilities. Except for one PHC, no other PHC, CHC, district hospital and sub-divisional hospital had an emergency plan available with them. Both the private hospitals and the medical college included in the survey

were having the emergency plan. This emergency plan was documented in writing and was accessible to all staff in the HCFs. It had an arrangement for rapid transfer of emergency department patient, arrangement for cancelling non-emergent services, printed chart and copies available to all staff and plan was also evaluated and updated. Except for one private hospital and medical college, none of the healthcare facilities had incident command system. Among all the HCFs surveyed, only one private hospital had colour coded job action cards available.

Figure 9: Status regarding emergency plan and Incident command system in healthcare facilities

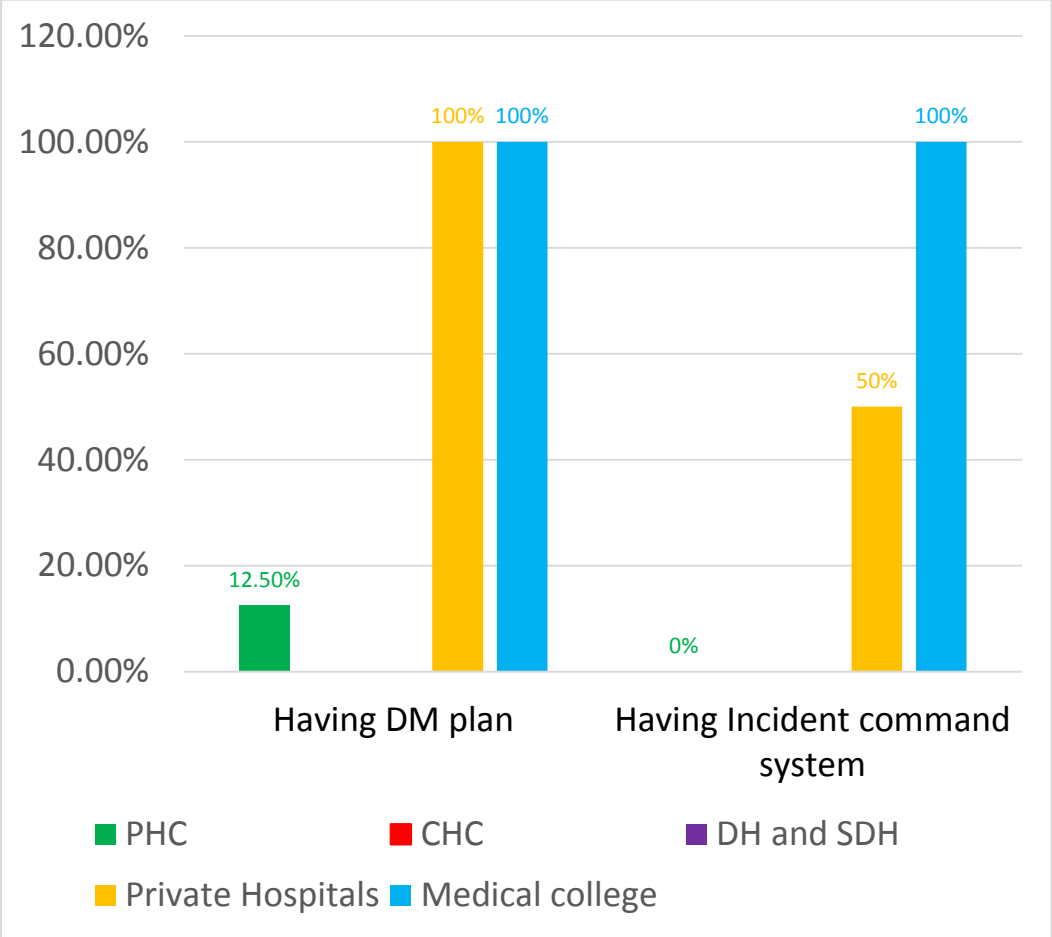


Table 8: Emergency preparedness in healthcare facilities

Emergency preparedness in healthcare facilities	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
Availability of public health emergencies report or register system	5(62.5)	4(100)	2(100)	2(100)	1(100)
Availability of emergency warning system	0	0	1(50)	2(100)	1(100)
Availability of a system to communicate with other health facilities/ government office/ media	8(100)	4(100)	2(100)	2(100)	1(100)
Availability of any notification system to notify on-duty and off-duty staff about emergency status	8(100)	4(100)	2(100)	2(100)	1(100)
Had conducted/ participated in epidemiological surveillance	7(87.5)	4(100)	2(100)	2(100)	1(100)
Had conducted training regarding disaster management/ public health emergency in last 5 years	6(75)	3(75)	2(100)	2(100)	1(100)
Had conducted drills for preparedness of disaster management/ public health emergency	1(12.5)	3(75)	2(100)	2(100)	1(100)

Had protocol for transportation of suspected samples	8(100)	4(100)	2(100)	2(100)	1(100)
Had disaster supplies labelled as 'FOR DISASTER USE ONLY' and kept separately	7(87.5)	4(100)	2(100)	2(100)	1(100)
Had proper protocol for transferring patients to higher facility	8(100)	4(100)	2(100)	2(100)	1(100)

**Figures in parentheses indicate percentages.*

All the healthcare facilities included in the study had communication system to communicate with other health facility, notification system to notify the staff about emergency status, protocol for transportation of suspected sample and transferring patients to higher facility. All the HCFs except for one PHC had conducted/ participated in epidemiological surveillance and also had the disaster supplies labelled as 'FOR DISASTER USE ONLY' and kept separately. Both the private hospitals, medical college, DH, SDH, three CHCs and six PHCs had conducted trainings regarding disaster management/ public health emergency in last 5 years. Only one PHC and three CHCs had conducted drills for preparedness of disaster management. All HCFs barring three PHCs had public health emergencies report or register system. Both private hospitals, medical college and DH included in the study had emergency warning system but it was not available in any of the studied PHCs and CHCs.

Figure 10: Status regarding communication system in healthcare facilities

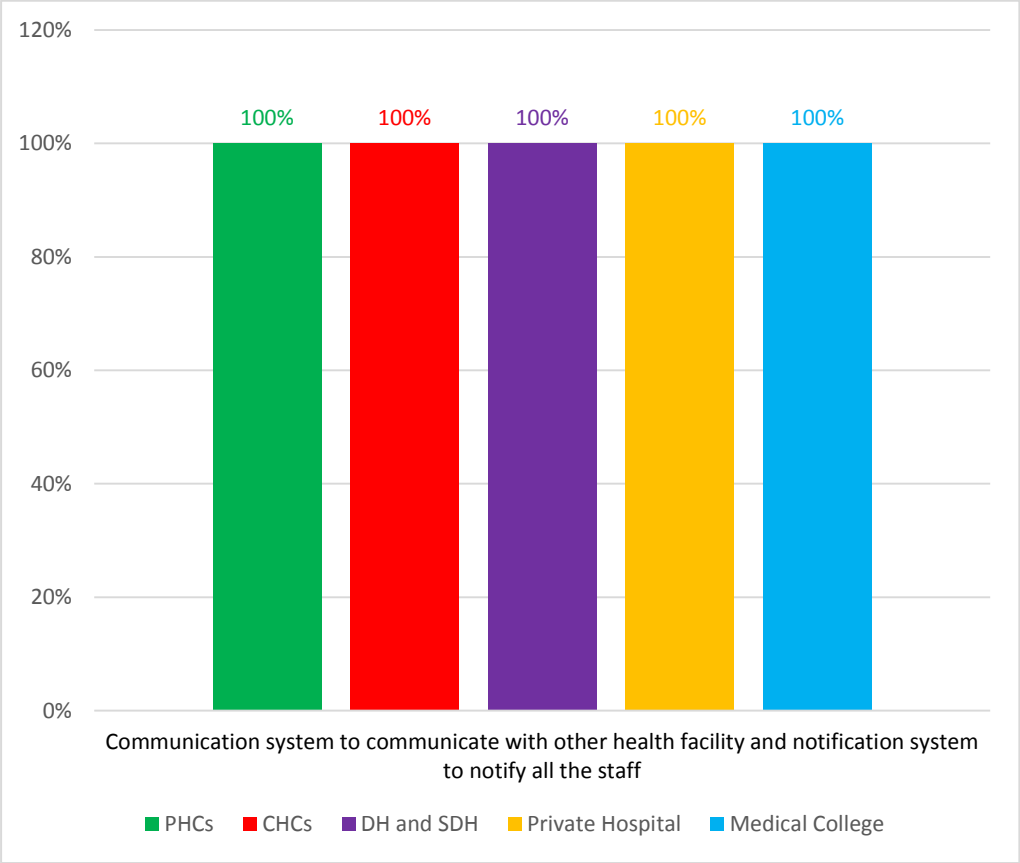


Figure 11: Status regarding training and drills in healthcare facilities

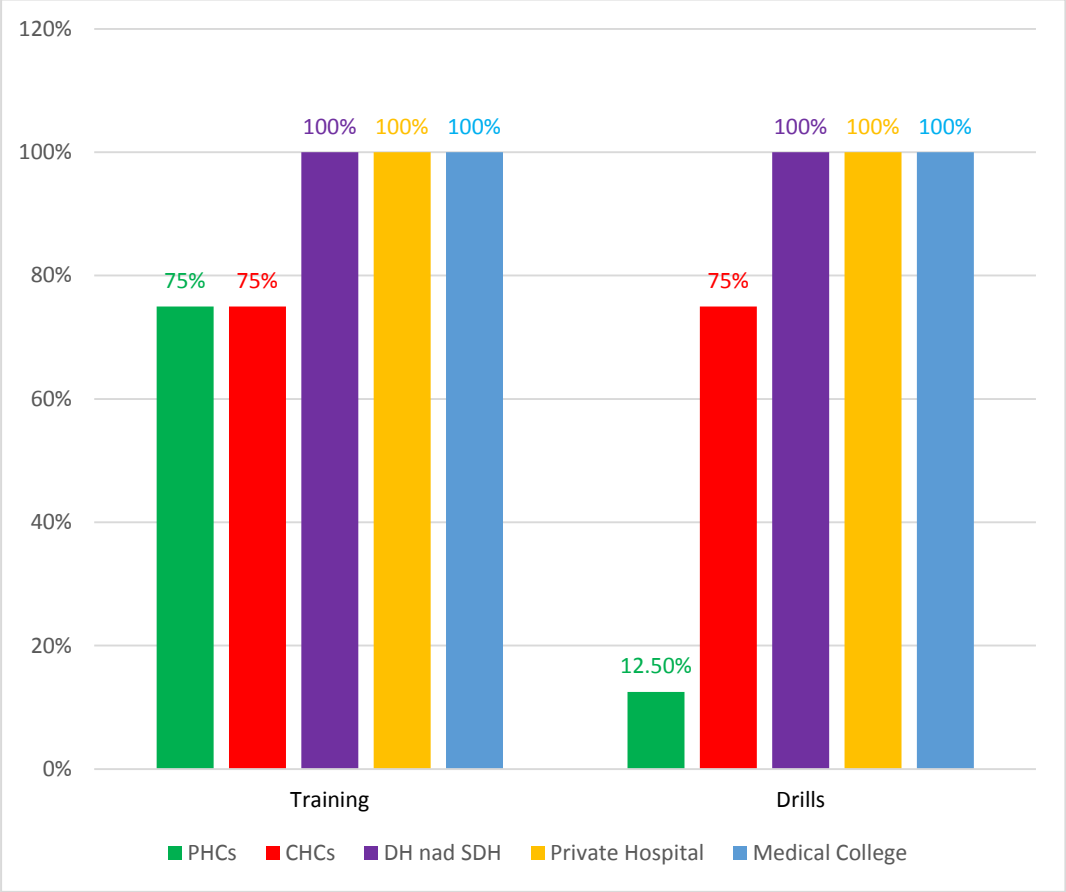


Table 9: Availability of infrastructure in the healthcare facilities

Availability of infrastructure	**PHC (n = 8)**	**CHC (n= 4)**	**DH and SDH (n=2)**	**Private (n=2)**	**Medical College (n=1)**
OPD rooms	8(100)	4(100)	2(100)	2(100)	1(100)
Emergency room	4(50%)	4(100)	2(100)	2(100)	1(100)
Operation Theatre room	1(12.5%) *	4(100)	2(100)	2(100)	1(100)
Xray room	1(12.5%) *	4(100)	2(100)	2(100)	1(100)
Labour room	8(100)	4(100)	2(100)	2(100)	1(100)
Laboratory	8(100)	4(100)	2(100)	2(100)	1(100)
Pharmacy	8(100)	4(100)	2(100)	2(100)	1(100)
Blood storage unit	0*	0	2(100)	2(100)	1(100)
Biomedical waste management system	8(100)	4(100)	2(100)	2(100)	1(100)
Storage area for sterile supplies	8(100)	4(100)	2(100)	2(100)	1(100)
Storage area for emergency supplies	8(100)	4(100)	2(100)	2(100)	1(100)
Nursing station	6(75)	4(100)	2(100)	2(100)	1(100)
Mortuary	0*	1(25)	2(100)	2(100)	1(100)
Residential area for staff	1(12.5)	3(75)	2(100)	2(100)	1(100)

***Not Applicable*

Availability of the infrastructure in the healthcare facilities was studied. As per general infrastructure availability, both private hospitals, medical college, DH, SDH, CHC and four PHCs had emergency room. OT

room and X-ray room were available all off the HCFs while available in only one of the PHC (non-essential). Residential area for staff was available in one PHC and three CHCs. OPD room, labour room, laboratory, pharmacy, biomedical waste management system, storage area for sterile and emergency supplies was available in all of the facilities. Nursing station was available in all except for two PHCs. Blood storage was available at all the facility except for CHCs. Both private hospitals, medical college, DH, SDH had mortuary services available while only one CHC had this service. Mortuary services are not required at the level of PHC as per Indian Public Health Standards 2012 (IPHS).

Figure 12: Status regarding Blood storage, sterile and emergency supply storage in healthcare facilities

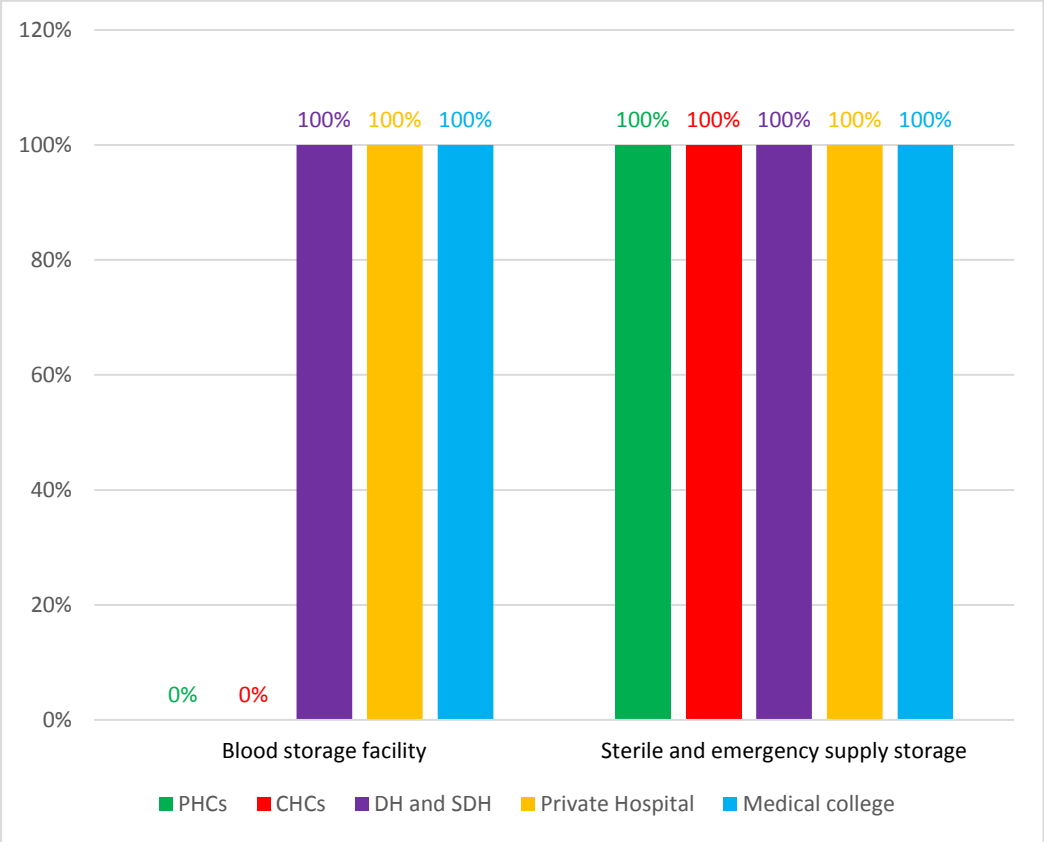


Table 10: Availability of infrastructure in emergency room in healthcare facilities

Infrastructure in emergency room	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
Proper entry to emergency area	3(37.5)	2(50)	1(50)	0	1(100)
Triage area	1(12.5)	2(50)	2(100)	2(100)	1(100)
Isolation room/ beds	0	3(75)	1(50)	1(50)	1(100)
Patient waiting room	8(100)	4(100)	2(100)	1(50)	1(100)
Separate area of entry in emergency for infected/ contaminated patients	1(12.5)	2(50)	1(50)	1(50)	1(100)
Extra beds in case of disaster	1(12.5)	3(75)	2(100)	2(100)	1(100)
Minor OT/ sterile dressing room	5(62.5)	4(100)	2(100)	2(100)	1(100)
Exit door under direct access without lock and key	3(37.5)	1(25)	2(100)	2(100)	1(100)
Location/Area to accommodate patient during mass casualty	3(37.5)	4(100)	1(50)	2(100)	1(100)
Temporary morgue facility in case of mass casualty	0	0	1(50)	0	1(100)

Emergency room facilities were seen in detail in HCFs regarding infrastructure and it was seen that proper entry to emergency was present in three out of eight PHCs, two out of four CHCs, DH and medical college. Triage area was available in both private hospitals, DH, SDH, medical college while available in only two CHCs and one PHC. Isolation beds were available in medical college, one private hospital, DH and three CHCs. Patient waiting area was available in all except in one private hospital. Separate area of entry in emergency for

infected/ contaminated patients was available in medical college, one private hospital, CHCs, DH and only one PHC. All the HCFs had minor OT except for three PHCs. Both private hospitals, medical college, DH, SDH had extra beds available while only one PHC and three CHCs had the same. Temporary morgue facility was available only in DH and medical college.

Figure 13: Status regarding Infrastructure in emergency room in healthcare facilities

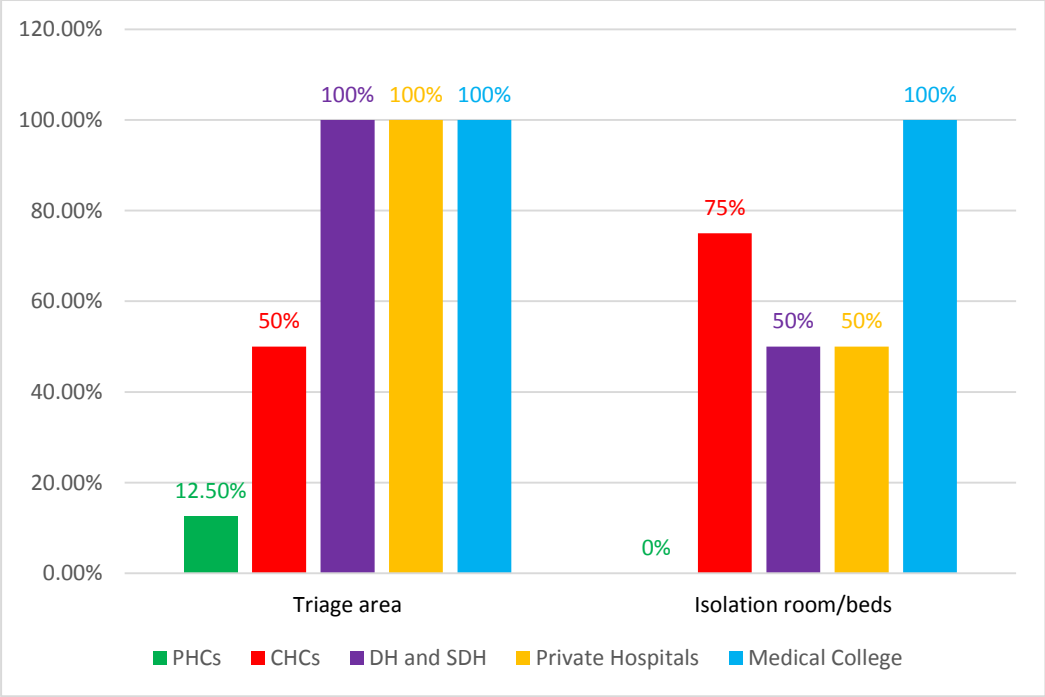


Figure 14: Status regarding Infrastructure in emergency room in healthcare facilities

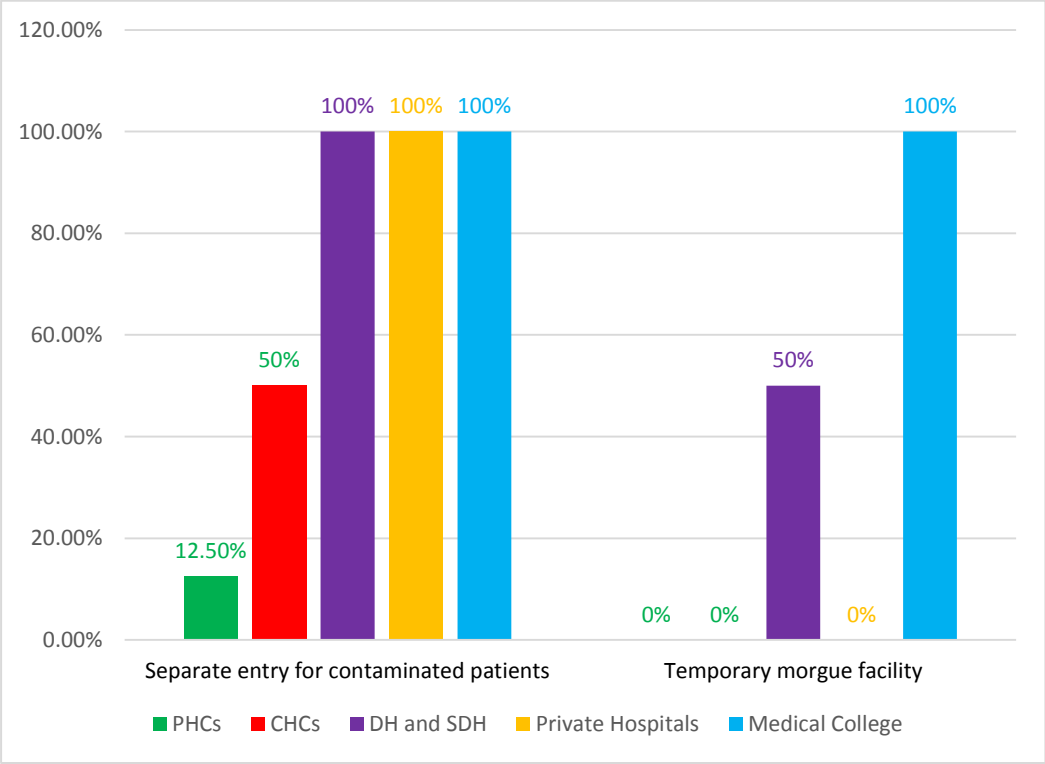


Table 11: Availability of essential and supportive services in healthcare facilities

Availability of essential and supportive services	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
Electricity for 24*7 available	8(100)	4(100)	2(100)	2(100)	1(100)
Emergency lighting/portable light	3(37.5)	4(100)	2(100)	2(100)	1(100)
Generator back up	7(87.5)	4(100)	2(100)	2(100)	1(100)
Water supply for 24*7 available	8(100)	4(100)	2(100)	2(100)	1(100)
Reserve emergency water tank	8(100)	3(75)	2(100)	2(100)	1(100)
Telephone service 24*7 available	0	3(75)	1(50)	2(100)	1(100)
Oxygen supply (cylinder)	8	3	-	-	-
Oxygen supply (Pipe and Cylinder)	0	1	2	2	2
Stretcher and basic life support fitting in ambulance	3(37.5)	4(100)	2(100)	2(100)	1(100)
Round the clock ambulance service available	0	0	2(100)	2(100)	1(100)
Fire alarm system	0	1(25)	2(100)	2(100)	1(100)
Ramp	N/A	0	2(100)	2(100)	1(100)
Safety stair case	N/A	0	2(100)	1(100)	1(100)

Guards	1(12.5)	1(25)	1(50)	2(100)	1(100)
Security room	0	0	1(50)	2(100)	1(100)
CCTV	2(25)	4(100)	2(100)	2(100)	1(100)

Table 11 shows the details of infrastructure of healthcare facilities for emergency services. All the facilities had 24*7 hours electricity and water supply available. Generator back up was not available in one PHC and reserve water tank was not available in one CHC. Emergency portable light was available in both private hospitals, medical college, DH, SDH, CHC and three out of eight PHC. Round the clock ambulance services was available in all healthcare facility except for all PHC and CHC which had it available on call. All the PHCs and three CHCs had oxygen cylinder and one CHC, SDH, DH, both private hospitals and medical college had both piped and cylinder for supply of oxygen. Stretcher and basic life support facility was available in all facilities except in one PHC. Fire alarm system was not available in all of PHCs while two CHCs and all of DH, SDH, both private hospitals, medical college had the service available. Guards were posted in one PHC, one CHC, DH and both private hospitals and medical college. CCTV system was available in all HCFs except for six out of eight PHCs.

Figure 15: Status regarding essential and supportive services in emergency room in healthcare facilities

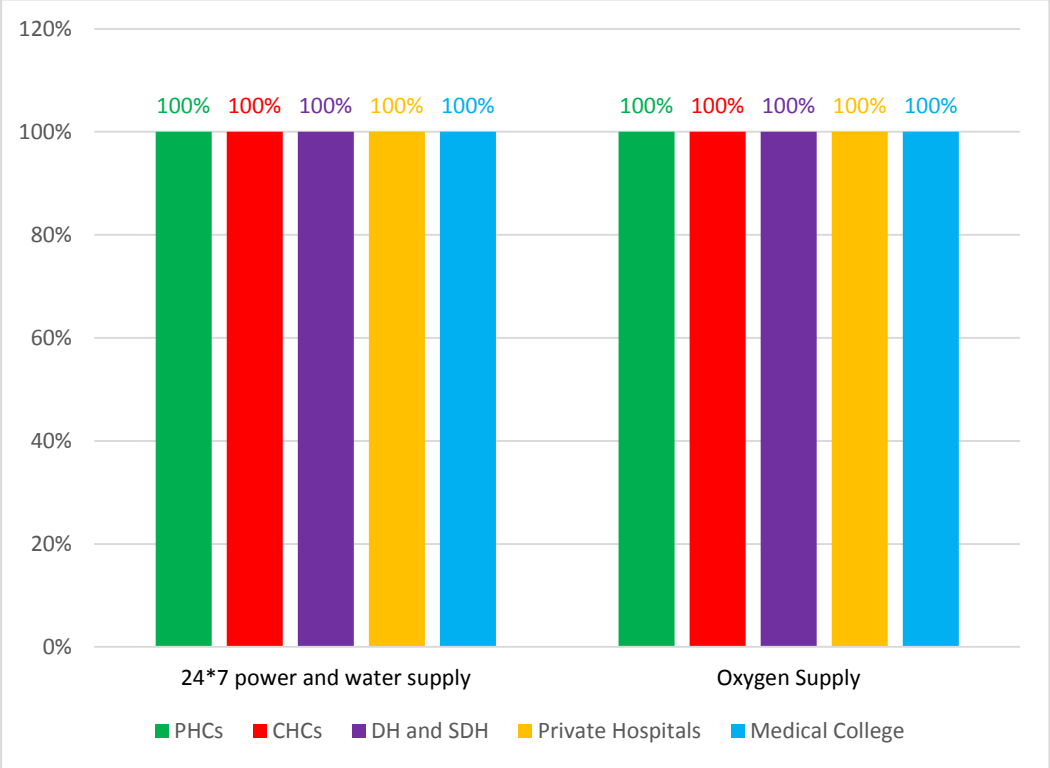


Figure 16: Status regarding fire safety in emergency room in healthcare facilities

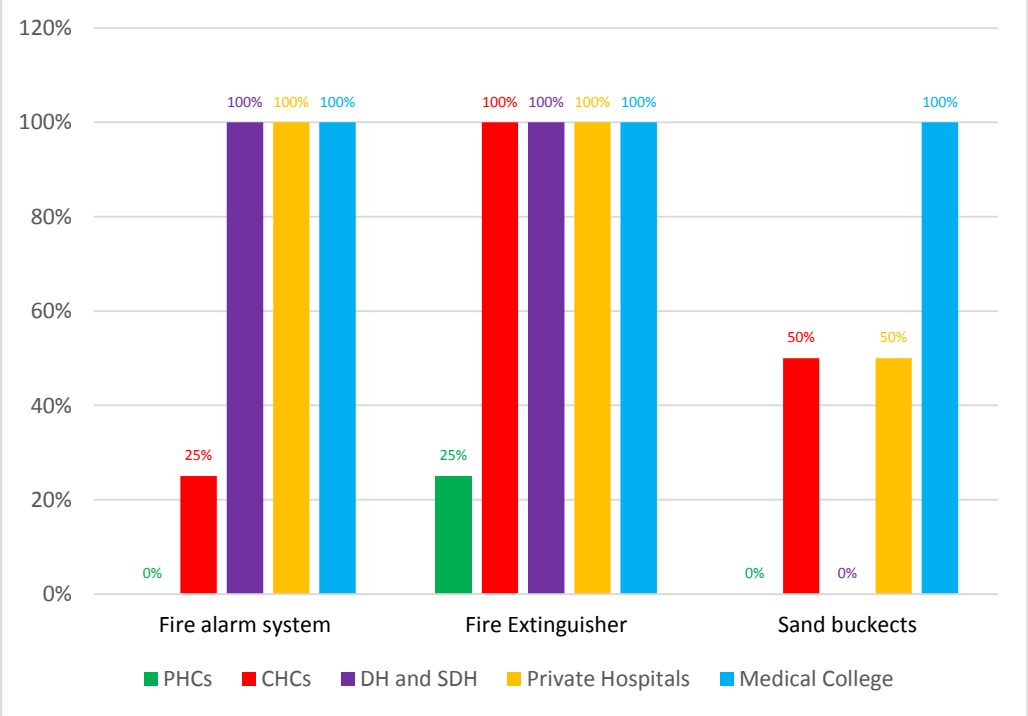


Table 12: Display of signage for healthcare facilities

Signage	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
On the way signage of health facility and location on all approach roads	6(75)	4(100)	2(100)	2(100)	1(100)
Emergency entry signage illuminated and in local language	3(37.5)	3(75)	2(100)	2(100)	1(100)
Emergency exit signage illuminated and in local language	3(37.5)	3(75)	2(100)	2(100)	1(100)
Safety, hazard and caution signs displayed at relevant places.	3(37.5)	4(100)	2(100)	2(100)	1(100)
Fluorescent fire exit signage	3(37.5)	0	1(50)	2(100)	1(100)
State/District helpline number displayed in local language	6(75)	4(100)	2(100)	2(100)	0

Presence of emergency signage for healthcare facilities is shown in table 12. Both private hospitals, DH, SDH, one medical college, three CHCs and PHCs had emergency entry and exit illuminated signage in local language. Safety, hazard and caution signs were displayed at all of HCFs while only three of PHCs had it. On the way signage of health facility and location on all approach roads was present in all facilities except for two PHCs. Fluorescent fire exit signage was not displayed in any of CHCs while displayed in both private hospitals, SDH, medical college and only three PHCs. State/District helpline number were displayed in local language in all the facilities except for two PHCs and medical college.

Figure 17: Status regarding display of signage in healthcare facilities

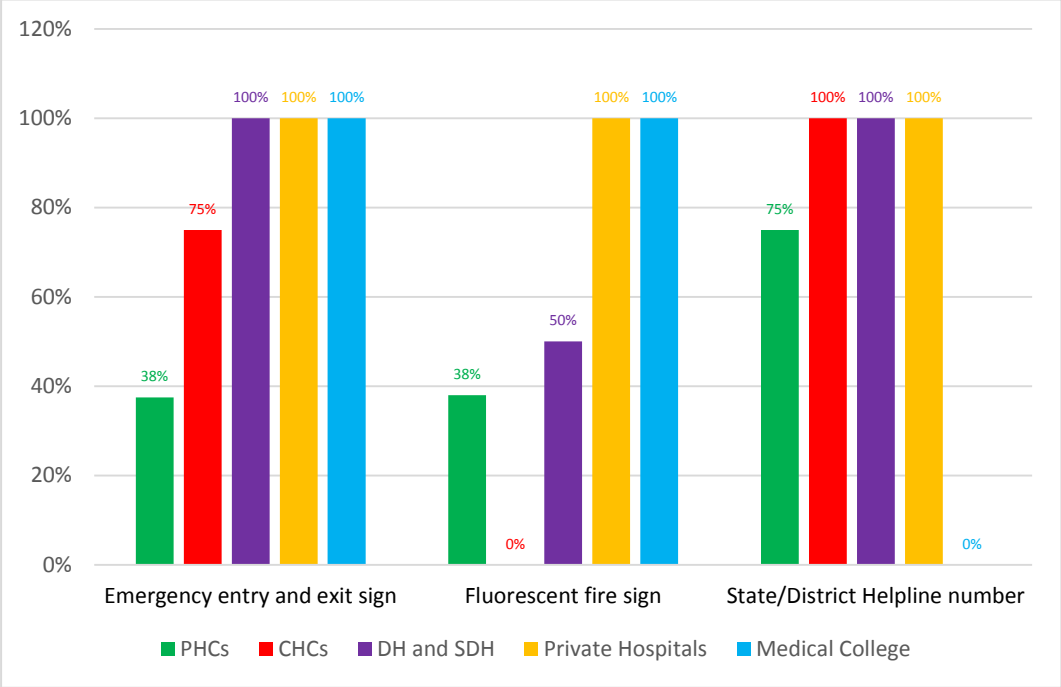


Table 13: Details of availability of equipment in healthcare facilities

Equipment	PHC (n = 8)	CHC (n= 4)	DH and SDH (n=2)	Private (n=2)	Medical College (n=1)
Emergency and fire safety					
Triage tags	0	0	1(50)	1(50)	1(100)
Crash carts and trolley	4(50)	4(100)	2(100)	2(100)	1(100)
Personal protective equipment	8(100)	4(100)	2(100)	2(100)	1(100)
ECG machine	2(25) *	3(75)	2(100)	2(100)	1(100)
Standard surgical kits	6(75)	4(100)	2(100)	2(100)	1(100)
Equipment for anaesthesia	1(12.5)	3(75)	2(100)	2(100)	1(100)
First Aid kits	7(87.5)	4(100)	2(100)	2(100)	1(100)
Public Address System	2(25) *	3(75)	1(50)	1(50)	1(100)
Fire extinguisher	2(25)	4(100)	2(100)	2(100)	1(100)
Sand buckets	0	2(50)	0	1(50)	1(100)
Blood transfusion Equipment					
Blood bank refrigerator	NA	0	2(100)	2(100)	1(100)
Blood storage unit	NA	0	2(100)	2(100)	1(100)
Deep freezers	6(75)	4(100)	2(100)	2(100)	1(100)
Insulated carrier boxes	7(87.5)	4(100)	2(100)	2(100)	1(100)
Microscope and centrifuge	6(75)	4(100)	2(100)	2(100)	1(100)
Laboratory Equipment					
Binocular microscope	7(87.5)	4(100)	2(100)	2(100)	1(100)
Ice box	7(87.5)	4(100)	2(100)	2(100)	1(100)
Refrigerator	7(87.5)	4(100)	2(100)	2(100)	1(100)
Sample transportation box	7(87.5)	4(100)	2(100)	2(100)	1(100)
Sterile leak proof container	7(87.5)	4(100)	2(100)	2(100)	1(100)

**Non-Essential*

Above table shows the availability of equipment in HCFs. Availability of emergency and fire safety equipment was studied and it was found that triage tags were not available in PHCs, CHCs, DH and one private hospital. Personal protective equipment was present in all facilities. Crash carts, standard surgical kits, first aid kits, fire extinguisher were present in all healthcare facilities but it was available in two of PHCs. ECG machine and equipment for anaesthesia were present in both private hospitals, medical college, DH, SDH except for one CHC. Sand buckets were available in medical college, one private hospital and in two CHCs. Blood bank refrigerator and storage unit was available in all HCFs except at CHCs.

ECG machine and public address system though non-essential but available at two of the PHCs. Deep freezers, insulated carrier boxes, microscope and centrifuge were present in all of the HCFs except for one PHC didn't have insulated carrier box and two of PHCs didn't have deep freezer, microscope and centrifuge available. Laboratory equipment were available in all of the facilities except for one PHC.

Figure 18: Status regarding equipment in healthcare facilities

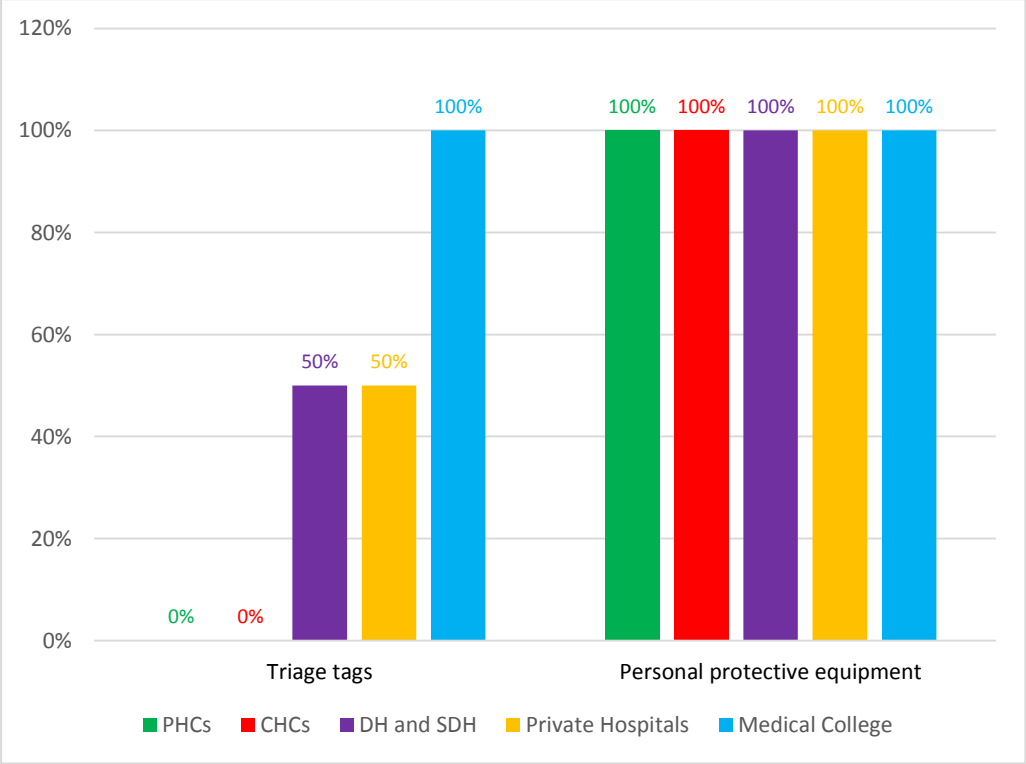


Table 14: Availability of manpower for emergency services at PHC

Manpower	Required per facility	Total Requirement	Available	% Deficiency If any
General duty / Emergency Medical Officer	1	8	11	-
Medical Officer-AYUSH	1*		6	-
Staff Nurse	3	24	31	-
Pharmacist	1	8	7	12.5
Pharmacist AYUSH	1*		4	-
Lab. technician	1	8	7	12.5
Ward boys	1	8	6	25

*Desirable

Availability of manpower was observed and compared with Indian Public Health Standards (IPHS) 2012. According to IPHS 2012, some of the manpower is essential and some is desirable at PHC level. General duty medical officer was available in all of the PHCs as per the requirement. AYUSH Medical officer, though not essential but desirable, were available in six PHCs. Three staff nurses per facility were available in all of the PHCs. There was 12.5% deficiency in availability of pharmacist and laboratory technician. Pharmacist AYUSH (non-essential) was present in four of PHCs. There was 25% deficiency in availability of ward boys.

Table 15: Availability of manpower for emergency services at CHCs

Manpower	Required per facility	Total Requirement (n=4)	Available (n=4)	% Deficiency If any
Block medical officer /medical superintendent	1	4	4	-
Public Health specialist	1	4	0	100
Public health Nurse	1	4	0	100
General surgeon	1	4	1	75
Physician	1	4	2	50
Obstetrician & Gynaecologist	1	4	3	25
Paediatrician	1	4	1	75
Anaesthetist	1	4	0	100
Dental Surgeon	1	8	4	50
General Duty / Emergency Medical Officer	2	8	6	25
AYUSH Medical Officer	1	4	5	-
Staff Nurse	10	40	33	17.5
Pharmacist	1	4	10	-
Pharmacist AYUSH	1	4	2	50
Lab. technician	2	8	8	-
Radiographer	1	4	4	-
OT technician	1	4	1	75
Ward boys	5	20	20	-
Driver	1	4	0	100

As shown in table 15, all of the four CHCs had block medical officer, AYUSH medical officer, pharmacist, laboratory technician, radiographer and ward boys as per the requirement in IPHS 2012. Posts of public health specialist, public health nurse, anaesthetist and driver were vacant at all four CHCs. Post of general surgeon, paediatrician and OT technician at were vacant at three of CHCs. Two out of four CHCs didn't have physician, dental surgeons and pharmacist AYUSH available as per the requirement. Post of obstetrician and gynaecologist and general duty/ emergency medical officer was vacant at one of the CHCs. There was 17.5% deficiency in nursing staff at CHCs.

Table 16: Availability of manpower for emergency services at sub-divisional hospital

Manpower	Required per facility	Available	% Deficiency If any
Hospital Superintendent	1	1	-
Public Health specialist	1	0	100
General Surgeon	1	2	-
Physician	1	1	-
Obstetrician & Gynaecologist	1	1	-
Paediatrician	1	0	100
Anaesthetist	1	0	100
Dental surgeon	1	1	-
General Duty / Emergency Medical Officer	7	3	57.2
AYUSH Doctor	1	1	-
Staff Nurse	18	10	44.4
Pharmacist	2	2	-
Lab. technician	4	1	75
Radiographer	1	2	-
OT technician	2	0	100
Ward boys	2	10	-
Driver	1	1	-

Hospital superintendent, general surgeon, physician, obstetric& gynaecologist, dental surgeon, AYUSH doctor, radiographer, ward boy and driver were available at the SDH as per their requirement according to IPHS 2012. However, post of public health specialist, paediatrician, anaesthetist and OT technician were vacant at SDH. Deficiency in availability of laboratory technician, emergency medical officer, staff nurses were 75%, 57.2% and 44.4% respectively.

Table 17: Availability of manpower for emergency services at district hospital

Manpower	Required per facility	Available	% Deficiency If any
Hospital Administrator	1	1	-
Public Health specialist	1	0	100
Public health Nurse	1	0	100
General surgeon	3	1	66.6
Physician	3	3	-
Obstetrician & Gynaecologist	4	4	-
Paediatrician	4	3	25
Anaesthetist	3	6	-
Dental Surgeon	2	2	-
General Duty / Emergency Medical Officer	15	7	53.4
AYUSH Doctor	1	1	-
Staff Nurse	135	77	42.8
Pharmacist	8	4	50
Pharmacist AYUSH	1	0	100
Lab. technician	12	8	33.3
Radiographer	5	6	-
OT technician	8	5	37.5
Ward boys	-	36	-
Driver	1	3	-

Table 17 shows the availability of manpower for emergency services at district hospital. Chief medical officer, physician, obstetrician & gynaecologist, anaesthetist, dental surgeon, radiographer, AYUSH doctor and driver were available as per the requirement in IPHS 2012. Post of public health specialist, nurse and pharmacist AYUSH were vacant. There was 66.6% deficiency in availability of general surgeon, 25% in paediatrician, 53.4% in emergency medical officer, 42.8% in staff nurse, 50% in pharmacist, 33.3% in laboratory technician and 37.5% deficiency in OT technician.

Table 18: Availability of manpower for emergency services at private hospital and medical college

Manpower	**Private Hospital (n=2)**	**Medical College (n=1)**
Total Doctors	80	550
Total Staff Nurses	328	1580
Pharmacists	18	198
Laboratory Technicians	17	138

Above table shows the number of doctors, nurses, pharmacists, laboratory technicians present in private hospitals and medical college at the time of interview that can be pooled and rotated according to disaster and emergency situation.

SECTION III: KNOWLEDGE REGARDING DISASTER PREPAREDNESS AMONG HEALTHCARE WORKERS

A. EMERGENCY PLAN

Table 19: Knowledge about emergency plan preparedness among healthcare workers as per healthcare facility

Knowledge regarding emergency plan preparedness	**PHC (n = 32)**	**CHC (n=30)**	**DH (n=12)**	**SDH (n=9)**	**Private (n=25)**	**Medical college (n=14)**	**TOTAL (N= 122)**
Does this health facility have a disaster preparedness plan?	3	0	0	0	14	10	**27 (22.1%)**
Has the health facility given pre-printed charts /copy of all relevant guidelines regarding disaster management to all the staff members?	2	0	0	0	14	10	**26 (21.3%)**
Are the state/district helpline numbers prominently displayed at your healthcare facility?	31	30	12	9	25	4	**111 (91.8%)**
Do you think your health facility needs a disaster preparedness plan?	31	30	12	9	11	3	**96 (78.6%)**
Do you think your health facility is adequately prepared to manage any type of disaster or emergency?	0	4	0	2	14	11	**31 (25.4%)**
Do you think your health facility was able to effectively manage last disaster/ public health emergency faced?	0	3	0	2	14	9	**28 (22.9%)**

*n= number of persons interviewed at that health facility level

Table 19 shows knowledge of HCWs about emergency plan preparedness. Out of total 122 HCWs, 22.1% reported that their health facility had a disaster management (DM) plan. Maximum number (71.4%) was from medical college. None of the HCWs of CHCs, DH and SDH reported about having disaster management plan but all of them felt that there was a need of such plan in their facilities.

Only 9.4% of the HCWs of PHC told that their facility had a plan while 96.8% felt the need of plan in their facilities. Similarly, 78.5% and 21.4% HCWs of private hospital and medical college felt the need of DM plan. Majority of HCWs (91.8%) reported that state/ district helpline numbers were displayed prominently at their facilities. Only about 23% of HCWs reported that their health facilities were able to effectively manage last disaster/ public health emergency faced.

Table 20: Knowledge about emergency plan preparedness as per category of healthcare workers

Knowledge regarding emergency plan preparedness	Category	YES	NO	Chi square	P value
Does the health facility have a disaster preparedness plan?	MO	11(30.5)	25(69.5)	3.0658	0.3815
	NS	6(18.1)	27(81.9)		
	LT	6(25)	18(75)		
	Pharmacist	4(13.7)	25(86.3)		
Has the health facility given pre-printed charts /copy of all relevant guidelines regarding disaster management to all the staff members?	MO	11(30.5)	25(69.5)	4.3017	0.2367
	NS	6(18.1)	27(81.9)		
	LT	6(25)	18(75)		
	Pharmacist	3(10.3)	26(89.7)		
Are the state/district helpline numbers prominently displayed at your healthcare facility?	MO	33(91.6)	3(8.4)	2.8290	0.4187
	NS	30(90.9)	3(9.1)		
	LT	20(83.3)	4(16.7)		
	Pharmacist	28(96.5)	1(3.5)		
Do you think your health facility needs a disaster preparedness plan?	MO	27(75)	9(25)	3.2551	0.3539
	NS	26(78.8)	7(21.2)		
	LT	17(70.8)	7(29.2)		
	Pharmacist	26(89.6)	3(10.4)		
Do you think your health facility is adequately prepared to manage any type of disaster or emergency?	MO	9(25)	27(75)	3.2799	0.3504
	NS	10(30.3)	23(69.7)		
	LT	8(33.3)	15(66.7)		
	Pharmacist	4(13.8)	25(86.2)		
Do you think your health facility was able to effectively manage last disaster/ public health emergency faced?	MO	9(25)	27(75)	1.8664	0.6005
	NS	9(27.3)	24(72.7)		
	LT	6(25)	18(75)		
		4(13.8)	25(86.2)		

*Medical officer (MO) =36, Nursing staff (NS) = 33, Laboratory Technician (LT) =24, Pharmacist =29

Knowledge of HCWs about emergency plan preparedness as per category of healthcare workers is shown in above table. It was reported by 30.5% of MO, 18.1% of NS, 25% of LT that their health facilities had a disaster preparedness plan and printed copies of disaster management guidelines while only 13.7% of pharmacist reported having disaster management plan and 10.3% of pharmacist reported having printed guidelines. Most of the HCWs knew that the helpline numbers were prominently displayed in their facilities. Need of having a plan was reported by 75% of MO, 78.8% of NS, 70.8% of LT and 89.6% of pharmacist. There were 25% of MO, 30.3% of NS, 33.3% of LT and 13.8% of pharmacist who told that their health facility was adequately prepared to manage any type of disaster. Only 25% of MO, 27.3% of NS, 25% of LT and 13.8% of pharmacist thought that their HCWs were able to effectively manage last disaster faced. Differences of responses on various questions asked among category of HCWs were non-significant ($p > 0.05$).

B. EMERGENCY COMMAND, TRIAGE AND EMERGENCY CODE SYSTEM

Table 21: Knowledge about emergency command, triage and emergency code system among healthcare workers as per healthcare facility

Knowledge regarding emergency command, triage and emergency code system	**PHC (n = 32)**	**CHC (n=30)**	**DH (n=12)**	**SDH (n=9)**	**Private (n=25)**	**Medical college (n=14)**	**TOTAL (N= 122)**
Does this health facility have a dedicated emergency department?	2	30	12	9	25	14	**92 (75.4%)**
Is there any command in charge in case of disasters and emergencies?	2	30	12	9	25	14	**92 (75.4%)**
Does the command officer develop standard job action cards	0	0	0	0	11	2	**13 (10.6%)**

Are these job action cards colour coded and easily accessible?	0	0	0	0	11	2	**13 (10.6%)**
Are you familiar with the term triage?	22	19	12	9	24	12	**97 (79.5%)**
Does this health facility use the triage system?	6	20	12	9	25	14	**86 (70.4%)**
Does the health facility have any emergency code system?	0	4	12	0	25	14	**55 (45%)**

All HCWs from CHCs, DH, SDH, both private hospitals and medical college reported that their facilities had a dedicated emergency department with a designated command in-charge. Only 6.2% of HCWs of PHC reported that their PHC had any emergency department and command in-charge. Only 44% HCWs from private hospital and 14.3% from medical college reported having a colour job action card that were easily accessible to them.

Out of 122 of total HCWs, 79.5% had knowledge about triage. From PHCs, 68.5% HCWs had knowledge about triage but only 18.7% reported that their PHCs use the triage system. Only 45% of HCWs reported that their facility had an emergency code system and out of this none was from PHCs and SDH.

Table 22: Knowledge about emergency command, triage and emergency code system preparedness as per category of healthcare workers

Knowledge regarding emergency command, triage and emergency code system	Category	YES	NO	Chi square	P value
Does this health facility have a dedicated emergency department?	MO	28(77.7)	8(22.3)	0.2423	0.9704
	NS	24(72.7)	9(27.3)		
	LT	18(75)	6(25)		
	Pharmacist	22(75.8)	7(24.2)		
Is there any command in charge in case of disasters and emergencies?	MO	28(77.7)	8(22.3)	0.2423	0.9704
	NS	24(72.7)	9(27.3)		
	LT	18(75)	6(25)		
	Pharmacist	22(75.8)	7(24.2)		
Does the command officer develop standard job action cards	MO	4(11)	32(89)	0.1814	0.9805
	NS	3(9.1)	30(90.9)		
	LT	3(12.5)	21(87.5)		
	Pharmacist	3(10.3)	26(89.7)		
Are these job action cards colour coded and easily accessible?	MO	4(11)	32(89)	0.1814	0.9805
	NS	3(9.1)	30(90.9)		
	LT	3(12.5)	21(87.5)		
	Pharmacist	3(10.3)	26(89.7)		
Are you familiar with the term triage?	MO	36(100)	0	NA	NA
	NS	29(87.8)	4(12.2)		
	LT	14(42.4)	10(57.6)		
	Pharmacist	14(48.2)	15(51.8)		
Does this health facility use the triage system?	MO	29(80.5)	7(19.5)	3.9657	0.2652
	NS	24(72.4)	9(27.6)		
	LT	16(66.7)	8(33.3)		
	Pharmacist	17(58.6)	12(41.4)		
Does the health facility have any emergency code system?	MO	17(47.2)	19(52.8)	0.1670	0.9827
	NS	14(42.4)	19(57.6)		
	LT	11(45.8)	13(54.2)		
	Pharmacist	13(44.8)	16(55.2)		

*MO=36, NS= 33, LT=24, Pharmacist =29

Table 22 shows the knowledge about emergency command, triage and emergency code system as per category of healthcare workers. Majority of HCWs reported that their health facilities had an emergency department and command officer. Availability of colour coded job action cards were reported by 11% of MO, 9.1% of NS, 12.5% of LT and 10.3% of pharmacist. All of the MO and majority of NS (87.8%) were familiar with term triage while 42.4% of LT and 48.2% of pharmacist knew about it. Availability of emergency code system was reported by nearly half of the HCWs. Differences in observations were found statistically non-significant ($p>0.05$).

C. TRAININGS AND DRILLS

Table 23: Knowledge about training and drills among healthcare workers as per healthcare facility

Knowledge regarding training and drill	PHC (n = 32)	CHC (n=30)	DH (n=12)	SDH (n=9)	Private (n=25)	Medical college (n=14)	TOTAL (N= 122)
Have this health facility experienced any disaster in past 5 years/after you have joined?	32	30	12	9	25	14	**122**
Has the health facility designated a person in-charge of training for disaster preparedness?	29	30	12	9	25	14	**119 (97.5%)**
Have you participated in disaster preparedness training in the last one year?	29	30	12	9	25	12	**117 (95.9%)**
Does this health facility conduct mock drills regarding disaster preparedness?	0	25	12	9	23	10	**79 (64.7%)**
Has the health facility conducted evacuation drill of all staff and patients present at the time of drill?	0	0	12	0	8	0	**20 (16.4%)**

All of HCWs had experienced disaster in last five years. Majority (95.9%) of HCWs had participated in training regarding disaster preparedness in last one year. It was reported by 64.7% HCWs that their healthcare facilities had conducted mock drills and out of this none was from PHCs. Only 16.4% HCWs reported that their health facilities had conducted evacuation drill of all staff and patients present at the time of drill and none of them was from PHCs, CHCs, SDH and medical college.

Table 24: Knowledge About training and drills as per category of healthcare workers

Knowledge regarding training and drill	Category	YES	NO	Chi square	P value
Has this health facility experienced any disaster in past 5 years/ after you have joined?	MO	36(100)	0	NA	NA
	NS	33(100)	0		
	LT	24(100)	0		
	Pharmacist	29(100)	0		
Has the health facility designated a person in-charge of training for disaster preparedness?	MO	33(91.6)	3(8.4)	NA	NA
	NS	33(100)	0		
	LT	24(100)	0		
	Pharmacist	29(100)	0		
Have you participated in disaster preparedness training in the last one year?	MO	33(91.6)	3(8.4)	NA	NA
	NS	33(100)	0		
	LT	22(91.6)	2(8.4)		
	Pharmacist	29(100)	0		
Does this health facility conduct mock drills regarding disaster preparedness?	MO	25(69.4)	11(30.6)	3.4769	0.3237
	NS	24(72.7)	9(27.3)		
	LT	15(62.5)	9(37.5)		
	Pharmacist	15(51.7)	14(48.3)		
Has the health facility conducted evacuation drill of all staff and patients present at the time of drill?	MO	6(16.7)	30(83.3)	2.530	0.4698
	NS	7(21.2)	26(78.8)		
	LT	2(8.3)	22(91.7)		
	Pharmacist	7(24.1)	22(75.9)		

*MO=36, NS= 33, LT=24, PH=29

Table 24 shows knowledge about training and drills as per category of healthcare workers. All of the HCWs had experienced some disaster in last 5 years. All of the NS and pharmacist had participated in disaster preparedness training in last one year while 91.6% of MO and LT had participated in training. It was reported by 69.4% of MO, 72.7% of NS, 62.5% of LT and 51.7% of pharmacist that their health facility had conducted mock drills. Only 16.7% of MO, 21.2% of NS, 8.3% of LT and 24.1% of pharmacist reported that their health facilities had conducted evacuation drills. The observations found above had no statistically significant difference among them ($p>0.05$).

D. COMMUNICATION, SURVEILLANCE AND STOCKPILE

Table 25: Knowledge about communication, surveillance and stockpile among healthcare workers as per healthcare facility

Knowledge regarding communication, surveillance and stockpile	PHC (n = 32)	CHC (n=30)	DH (n=12)	SDH (n=9)	Private (n=25)	Medical college (n=14)	TOTAL (N= 122)
Does the health facility have a system to communicate with other health facilities, government office or media?	32	30	12	9	25	14	**122**
Is there any emergency warning system for disaster within all the departments for this health facility?	0	8	0	3	25	14	**50 (41%)**
Does the health facility have any notification system to notify on-duty and off-duty staff of emergency status?	32	30	12	9	25	14	**122**
Is there any single platform (like WhatsApp) on which all the facility and field staff are available for communication and coordination?	32	30	12	9	25	14	**122**
Does the health facility have designated in charge of emergency stock management?	31	30	12	9	25	14	**121 (99.2%)**

Are the disaster supplies inventoried, secured and labelled as 'FOR DISASTER USE ONLY'	32	30	12	9	25	14	**122**
Does the health facility have PPE for all staff ?	32	30	12	9	25	14	**122**

All of the HCWs reported that their health facilities had a system to communicate with other health facilities, government office or media and had notification system to notify on-duty and off- duty staff about emergency status. The HCWs had single platform for communication and all were available on that platform. HCWs reported to have PPEs available for all staff. Only 41% of HCWs reported having emergency warning system for disaster within all the departments. Almost all of HCWs reported that the health facilities had designated in charge of emergency stock management.

Table 26: Knowledge about communication and surveillance and stockpile as per category of healthcare workers

Knowledge regarding communication, surveillance and stockpile	Category	YES	NO
Does the health facility have a system to communicate with other health facilities, government office or media?	MO	36(100)	0
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	28(96.5)	1(3.5)
Is there any emergency warning system for disaster within all the departments for this health facility?	MO	16(44.4)	20(55.6)
	NS	12(36.3)	21(63.7)
	LT	10(41.6)	14(58.4)
	Pharmacist	12(41.3)	17(58.7)
Does the health facility have any notification system to notify on-duty and off- duty staff of emergency status?	MO	36(100)	0
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	29(100)	0
Is there any single platform (like WhatsApp) on which all the facility and field staff are available for communication and coordination? plan?	MO	36(100)	0
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	29(100)	0
Does the health facility have designated in charge of emergency stock management?	MO	35(97.2)	1(2.8)
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	29(100)	0
Are the disaster supplies inventoried, secured and labelled as ‘FOR DISASTER USE ONLY’?	MO	36(100)	0
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	29(100)	0
Does the health facility have PPE for all staff?	MO	36(100)	0
	NS	33(100)	0
	LT	24(100)	0
	Pharmacist	29(100)	0

*MO=36, NS= 33, LT=24, PH=29

Table 26 shows knowledge about communication, surveillance and stockpile as per category of healthcare workers. Majority of HCWs reported that their health facilities had communication system to communicate with other facilities, government and media. There were 44.4% of MO, 36.3% of NS and 41.6% of LT and pharmacist who reported about having an emergency warning system for disaster within the departments. All the HCWs reported that their facilities had a notification system to notify the staff, separate storage of supplies for disaster and PPE for all staff.

E. SURGE CAPACITY

Table 27: Knowledge about surge capacity among healthcare workers as per healthcare facility

Surge capacity	PHC (n = 32)	CHC (n=30)	DH (n=12)	SDH (n=9)	Private (n=25)	Medical college (n=14)	TOTAL (N= 122)
Does the health facility has a mobile team for rescue or rapid response?	28	27	12	9	25	10	**111 (90.9%)**
Does the health facility has 24 hrs power supply and water supply available	32	30	12	9	25	14	**122**
Does the health facility have mortuary arrangement?	0	7	12	9	25	14	**64 (52.4%)**
Does the health facility has fire alarm system?	0	1	12	9	25	14	**61 (50%)**
Does the health facility has electricity back up (generator)?	31	30	12	9	25	14	**121 (99.1%)**
Does the health facility has ambulance facility available?	32	30	12	9	25	14	**122**

As it is evident in table 27, majority of HCWs reported that their facilities had a mobile team for rescue or rapid response team. All of the HCFs had 24 hours water and power supply. Almost all (99.1%)

had electricity back up. All the HCWs from DH, SDH, both private hospitals and medical college reported having fire alarm system at their facility. Only 3.3% of HCWs from CHCs reported having fire alarm system at their facility and there was nil response from PHCs. All the HCWs from SDH, DH, both private hospitals and medical college reported having mortuary arrangement at their facilities while only 23.3% HCWs from CHCs reported same. All the HCWs reported that ambulance service was available at their facilities. (PHC and CHC- on call 108- ambulance)

Table 28: Knowledge about surge capacity as per category of healthcare workers

Surge capacity	Category	YES	NO	Chi square	P value
Does the health facility has a mobile team for rescue or rapid response?	MO	35(97.2)	1(2.8)	8.0414	0.0452
	NS	32(96.6)	1(3.4)		
	LT	19(79.2)	5(20.8)		
	Pharmacist	25(86.2)	4(13.8)		
Does the health facility has 24 hrs power supply and water supply available?	MO	36(100)	0	NA	NA
	NS	33(100)	0		
	LT	19(79.2)	5(20.8)		
	Pharmacist	29(100)	0		
Does the health facility have mortuary arrangement?	MO	19(52.8)	17(47.2)	0.1571	0.9842
	NS	17(51.5)	16(48.5)		
	LT	12(50)	12(50)		
	Pharmacist	16(55.1)	13(44.9)		
Does the health facility has fire alarm system	MO	18(50)	18(50)	0.2315	0.9732
	NS	16(48.5)	17(51.5)		
	LT	13(54.1)	11(45.9)		
	Pharmacist	14(48.2)	15(51.8)		
Does the health facility has electricity back up (generator)?	MO	36(100)	0	NA	NA
	NS	33(100)	0		
	LT	23(95.8)	1(4.2)		
	Pharmacist	29(100)	0		
Does the health facility has ambulance facility available?	MO	36(100)	0	NA	NA
	NS	33(100)	0		
	LT	24(100)	0		
	Pharmacist	29(100)	0		

*MO=36, NS= 33, LT=24, PH=29

Table 28 shows the knowledge about surge capacity as per category of healthcare workers. Availability of mobile rescue team was reported by 97.2% of MO,96.6% of NS, 79.2% of LT and 86.2% of pharmacist ($p<0.05$). About 50% of HCWs reported having mortuary arrangement at their healthcare facilities. All the HCWs reported having ambulance service available. All of the MO, NS, pharmacist reported that their facilities had electricity back up and 24hrs power and water supply while 95.8% LT reported having electricity back up and 79.2% having 24 hrs power and water supply. Availability of fire alarm system was reported by nearly half of the HCWs ($p>0.05$).

SECTION IV: QUALITATIVE ANALYSIS AND VARIOUS THEMES GENERATED

Table 29: Suggestions to improve disaster management capacity and protocol in healthcare facilities

Suggestions given by the HCWs	**Category**	**Number**	**Percentage**
Increase in availability of equipment, manpower and funding required	MO	17	
	NS	11	
	LT	6	
	Pharmacist	12	
	TOTAL	**46**	**37.7**
Need of a disaster management plan	MO	5	
	NS	8	
	LT	7	
	Pharmacist	8	
	TOTAL	**28**	**22.9**
More frequent training and drills required	MO	12	
	NS	5	
	LT	5	
	Pharmacist	4	
	TOTAL	**26**	**21.3**
Emergency services other than 24*7 delivery should be made available at primary healthcare level	MO	1	
	NS	1	
	LT	-	
	Pharmacist	1	
	TOTAL	**3**	**2.4**
Disaster management plan should include disasters other than floods	MO	2	
	NS	-	
	LT	-	
	Pharmacist	-	
	TOTAL	**2**	**1.6**
Separate trauma wing is required	MO	2	
	NS	-	
	LT	-	
	Pharmacist	-	
	TOTAL	**2**	**1.6**

*MO=36, NS= 33, LT=24, PH=29

Table 29 focus on qualitative analysis and themes generation of suggestion given by all HCWs to improve the disaster management capacity and protocol in HCFs. There were multiple suggestions from one healthcare worker. It was suggested by 37.7% of HCWs that there was need for increase in availability of equipment, manpower and funding. Around 23% of respondents suggested that there was a need of disaster management plan. Need for more frequent trainings and drills was felt by 21.3% of the HCWs. About 2.4 % HCWs from PHCs suggested that emergency services other than 24*7 delivery should be made available at primary healthcare level. Around 1.6% of respondents suggested that disaster management plan should include disaster other than floods and separate trauma wing was required.

Table 30: Suggestions about training & drills regarding disaster preparedness

Suggestions given by the HCWs	Category	Number	Percentage
Trainings and drills should be conducted more frequently for all staff	MO	22	
	NS	16	
	LT	10	
	Pharmacist	15	
	TOTAL	**63**	**51.6**
Trainings for paramedical staff and class IV workers are required	MO	13	
	NS	9	
	LT	5	
	Pharmacist	8	
	TOTAL	**35**	**28.6**
Trainings and drills for internal disaster should be conducted	MO	1	
	NS	1	
	LT	1	
	Pharmacist	0	
	TOTAL	**3**	**2.4**
Trainings should be given at the time of joining	MO	0	
	NS	1	
	LT	1	
	Pharmacist	0	
	TOTAL	**2**	**1.6**
Training should be given in offline mode (practical) instead of online	MO	0	
	NS	2	
	LT	0	
	Pharmacist	0	
	TOTAL	**2**	**1.6**
Trainings and drills other than fire safety	MO	1	
	NS	0	
	LT	0	
	Pharmacist	1	
	TOTAL	**2**	**1.6**
'May I Help counter' should be there	MO	0	
	NS	0	
	LT	1	
	Pharmacist	0	
	TOTAL	**1**	**0.8**

*MO=36, NS= 33, LT=24, PH=29

Half of the respondents felt that trainings and drills should be conducted more frequently for all staff. About 28% of HCWs suggested that trainings for paramedical staff and class IV workers were required. It was suggested by 2.4% of respondents that trainings and drills for internal disaster should be conducted. It was suggested by 1.6% of the respondents that trainings should be given at the time of joining and in offline mode and there should be trainings and drills other than fire safety. One of the respondents suggested that ‘May I help counter’ should be present at the facility.

DISCUSSION

Disaster is a sudden phenomenon of sufficient magnitude to require external assistance that overwhelms the local capacity, creating imbalance between supply and demand for resources. [54] In human history, disasters have caused huge destructions and in the last four decades nearly 4 million lives have been lost and trillions of dollars in related damages have been seen worldwide due to disasters.[3] Disasters not only affect human lives and economy but also affects the health system and infrastructures.

The public healthcare system has its origins in the early days of mankind and has been evolving since then. Reducing the effects of disasters through community-based risk reduction and emergency preparedness has been recognized as an essential aspect for the attainment and protection of sustainable development. Disasters are the unpredictable events; therefore, preparedness is considered as a vital activity in case of disaster management. The most recent disaster is COVID-19 pandemic and even the most advanced nations of the twenty-first century have failed to contain its spread. Today, the entire world is in the grip of this disastrous situation caused by the pandemic. India being one of the top ten most disaster-prone countries has not been spared by this pandemic. [55] As of December 23rd, 2022, there are 660 million cases with 6 million reported deaths worldwide and 44 million confirmed cases with 0.5 million deaths in India. [6] The damage from COVID-19 has highlighted the importance of hospital disaster preparedness and response.

Hospitals have a major but also vulnerable function in disaster management. Hospitals are considered as a safe place or shelter by the communities. A disaster management plan should be prepared with no one-size-fits-all approach to manage and respond to different disaster situations. There is always a prior need to decide the roles and responsibilities of healthcare workers for improved communication, appropriate planning and effective response. Timely training, retraining and community integration are also important aspects to deal with any

emergency situation. Hospital disaster preparedness is an ongoing process designed to guarantee hospital resiliency and functionality during disaster and reduce overall mortality and morbidity. [56]

There is often a mismatch between resources and needs when disasters or emergencies occur. Research on this may help planners avoid frequent management loopholes, thus improving the response of disaster planning.

In the present study “A study on disaster preparedness among healthcare facilities in Ludhiana district”, various parameters related to the preparedness and resilience of healthcare facilities were considered. It was carried out in different healthcare facilities (HCFs) of primary, secondary and tertiary level. There are total of 16 blocks in the district covered by one district civil hospital, 4 sub divisional hospitals, 11 CHCs and 31 PHCs. Apart from this, there are 2 medical colleges and multiple super specialty private hospitals and nursing homes.

Simple random sampling technique was used for selection of healthcare facilities and purposive sampling for selection of participants within the healthcare facility. A thorough visit was conducted at selected health facilities to check the preparedness to deal with disasters and public health emergencies by using a checklist. Healthcare Workers (HCWs) including medical superintendent, senior medical officers, emergency medical officers, emergency nursing staff, laboratory technicians and pharmacists from the selected facilities at primary, secondary and tertiary level were interviewed by using a semi-structured questionnaire. Total 17 healthcare facilities (HCFs) were visited and 122 healthcare workers (HCWs) were interviewed

The results of the study are discussed under following headings:

1) Socio demographic profile of healthcare workers
2) Disaster preparedness checklist
3) Knowledge regarding disaster preparedness among healthcare workers
4) Perceptions / suggestions regarding disaster preparedness.

1. SOCIO DEMOGRAPHIC PROFILE OF THE HEALTHCARE WORKERS

A total of 122 healthcare workers were included in the study, out of which 36 (29.5%) were doctors (medical superintendent/ senior medical officer/ emergency medical officer/ medical Officer), 33 (27.0%) were nursing staff, 24 (19.7%) were laboratory technician and 29 (23.8%) were pharmacists.

1.1 AGE

The mean age of healthcare workers was 39.63±10.53 years with range of 22–58 years. Further the age distribution was categorised into four categories. Maximum was in age group of 31-40 years (42.6%) followed by 22.9% in 51-60 years, 20.5% in 20-30 years and 13.9% in 41-50 years age group. A study conducted by Ncube and Chimenya (2016), to check the disaster preparedness of hospital and healthcare workers by using a checklist in Northern Namibia, reported that 35% healthcare workers were in age group of 20-30 years, 21% in 31-40 years, 26% in 41-50 years and 18% in 51-60 years.

Desai S (2018) conducted a study to check the disaster preparedness of government and private hospitals in Mumbai, India. In this study it was reported that maximum (31%) healthcare workers were in age group of 21-30 and 31-40 years each followed by 25% in 41-50 years, 11% in above 50 years and 2% in age group of 18-20 years.

1.2 GENDER

The present study showed that 60% were females and 40% healthcare workers were males. This observation in present study could be because maximum proportion of sample size comprised of female nursing staff. This finding is in consonance with the of study conducted by Desai S (2018), which reported that 58% healthcare workers were females and 42% were males.

Similarly in a study by Ncube and Chimenya (2016) reported that, 73.6% were females and 26.4% healthcare workers were males.

1.3 YEARS OF EXPERIENCE

Maximum healthcare workers (37.7%) in the present study had experience for 1- 10 years. Similar findings were seen in a study conducted by Ogedegbe *et al* (2012) in a community teaching hospital in Northern New Jersey, according to which maximum (69.2%) of healthcare workers had experience for 1- 10 years.

Naser and Saleem (2018) conducted a study to assess the knowledge of healthcare workers of Yemen regarding disaster management, according to which maximum (82.5%) of healthcare workers had experience for 0-10 years.

In study conducted by Desai S (2018) reported that maximum healthcare workers had experience for less than 10 years.

2. Disaster preparedness checklist

In present study 8 PHC (Primary Health Centre), 4 CHC (Community Health Centre), 1 SDH (Sub divisional Hospital), 1 DH (District Hospital), 2 private hospitals and 1 medical college were covered and a total of 122 healthcare workers were interviewed.

2.1 Status regarding emergency plan in healthcare facilities

A disaster or emergency plan is an agreed set of arrangements used to prepare for, respond to, and recover from emergencies. This plan involves the description of responsibilities, management structures, strategies and resource and information management with view to protect life, property and environment. [57] A disaster plan is essential in ensuring that hospital is well prepared for disaster management. An effective hospital disaster plan aims at mitigation, preparedness, response and recovery. The Government of India-United Nations Development Programme (GOI/UNDP, 2002), recommended that the hospital disaster emergency preparedness planning can be divided into pre-disaster, disaster, and post-disaster phases which ensures that all aspects of the disaster continuum are included in the plan. [15]

In the present study, 76.4% of healthcare facilities did not have an emergency plan. Only one PHC, both the private hospitals and one

medical college included in the survey were having the emergency plan.

Similarly, a study conducted by Phalkey *et al* (2012) in primary and secondary healthcare centres in Orissa, India, reported that 96.5% of the facilities didn't have emergency preparedness plan. Farley JM (2016) conducted a study among public healthcare facilities of Sri Lanka, reported that 87% of facilities did not have a disaster preparedness plan. In a study conducted by Woyessa *et al* (2020) in zonal hospitals of western Ethiopia, reported that none of the facilities had any emergency preparedness plan.

In contrast to present study, Ingrassia *et al* (2016) conducted a study to evaluate the hospital disaster preparedness in Italy, using the World Health Organization hospital emergency response evaluation tool kit and it was reported in the study that all the hospitals had disaster management plan. In a national survey conducted by Dell'Era *et al* (2019) in Switzerland reported that 92% of the facilities had disaster preparedness plan.

However, having a disaster plan does not equal preparedness but is a part of the preparedness process only. For adequate implementation of a disaster plan, an incident command system is required. It is a designated system of command and control, which includes a combination of facilities, equipment, personnel, procedures, and means of communication designed to aid in the management of resources for emergency incidents. [58] In the present study only one private hospital and medical college, had an incident command system, whereas Woyessa *et al* (2020) in their study reported that none of the facility had an incident command system.

In contrast to this finding, study done by Kaji and Lewis *et al* (2006) to assess the hospital disaster preparedness in hospitals of Los Angeles, CA, it was reported that 96% of the facilities had hospital Incident command system and Dell'Era *et al* (2019) reported that 88% of the facilities had incident command system.

2.2 Emergency preparedness in healthcare facilities

A key concept in disaster management and planning is emergency preparedness in hospitals. An effective disaster plan will have an appropriate mechanism for timely communication among the hospital staff, members of response team and other authorities. In the present study**,** all the healthcare facilities had communication system to communicate with other health facility, notification system to notify the staff about emergency status, protocol for transportation of suspected sample and transferring patients to higher facility. Similarly in a study conducted by Treat *et al* (2001) in hospitals of (FEMA) Federal Emergency Management Agency Region III, US, reported that all the facilities had a well-established communication system for disaster management.

In contrast to these findings, study conducted by Woyessa *et al* (2020) in Western Ethiopia and Ingrassia *et al* (2016) in Italy reported all hospitals had insufficient communication system.

In the present study, all the healthcare facilities except for one PHC, had conducted/ participated in epidemiological surveillance. Kaji and Lewis *et al* (2006) in their study reported that 98% of the facilities had surveillance system in place. Similarly, in a study conducted by Ambat and Vyas (2020) among private hospitals in Karnataka, India, it was reported that maximum (81.0%) healthcare facilities were participating in epidemiological surveillance.

In contrast to this finding, a study done by Gilmore *et al* (2007) to assess the emergency preparedness in western Wisconsin, reported that 20% of the facilities were involved in epidemiological surveillance.

A written disaster plan without any training and drills creates a false sense of protection among healthcare facilities. After designing an emergency plan, training, education and drills is the next step. An effective disaster response needs well qualified and trained staff that can apply their expertise and skills during an emergency. Regular training, cross training and sensitization of all the hospital staff through drills is required for effective management. Monitoring

and evaluation of the preparedness process will enable the facilities to determine how well prepared are the facilities and what else needs to be done to improve the process.

In current study, 82.3% of the healthcare facilities had conducted trainings regarding disaster management/ public health emergency in last 5 years and 53% had conducted drills for preparedness of disaster management. Similarly, Dell'Era *et al* (2019) reported that 52% of the facilities had conducted mock drills in their facility.

In contrast with this finding, in a study conducted by Yari *et al* (2021) among primary healthcare facilities in Kurdistan province of Iran, reported that only 22% of healthcare facilities had conducted disaster preparedness training and 20% had conducted drills. Kaji and Lewis *et al* (2006) in their study reported that only 16% of the facilities had conducted disaster training whereas Woyessa *et al* (2020) in their study reported that none of the facilities had conducted training for the staff.

2.3 Availability of infrastructure in the healthcare facilities

Disaster and emergency logistics consists of processes and system that can effectively mobilize resources and people to assist the victims affected by disaster. To avoid stock outs during any disaster, emergency supply stockpiles should be adequately maintained in all the facilities.

According to national economic survey 2021-2022, India spends 2.1% of GDP on health sector. This is within a touching distance of government's target of reaching a health expenditure of 2.5% of GDP by 2025 as envisaged in the National Health Policy. Punjab spends about 4.3% of GSDP on health sector. [59]

In the present study, storage area for sterile and emergency supplies was available in all of the facilities. In study conducted by Phalkey *et al* (2012) in Orissa, India, reported that 72.4% healthcare facilities had emergency supply stockpiles maintained in their facility. In contrast to this, Yari *et al* (2021) in Iran reported that only 19.3% of the facilities had storage area for emergency supplies.

Triage is one of the key principles of the effective management of an emergency. It is the prioritization done in emergency to ensure greater good to greater number of patients with available resources. In present study triage area was available in both private hospitals, DH, SDH, medical college, two out of four CHCs and one out of eight PHCs i.e., nearly half of the healthcare facilities had the triage area. This finding is in consonance with a study conducted by Sharma and Sharma (2020) among District Hospital and CHCs in Rajasthan, India, which reported that 58.6% of the facilities had triage area marked. In contrast to this Ingrassia *et al* (2016) reported that majority of the assessed hospital had sufficient level of preparedness to perform triage during an emergency situation in Italy.

In present study Isolation beds were available in medical college, one private hospital, DH and three CHCs (35.2%). Similarly in the study by Ambat and Vyas (2020) among private hospitals of Karnataka, India reported that 39% of the facilities had isolation room available. In contrast to these findings, study by Sharma and Sharma (2020) among DH and CHCs of Rajasthan, India, reported that isolation rooms were available in 89.7% of the facilities.

Separate area of entry in emergency for infected/ contaminated patients was available in medical college, one private hospital, CHCs, DH and in only one of the PHCs in current study. Dell'Era *et al* (2019) reported that 60% of the facilities in Switzerland had separated area for contaminated patients.

2.4 Availability of essential and supportive services and equipment in healthcare facilities

Every hospital shall ensure the continuity of essential services in all the circumstances by ensuring adequate resources and hospital supplies. Developing and ensuring back up arrangement of utility services, having a deployable evacuation plan, coordinating and networking with neighbouring hospitals/healthcare institutions can facilitate in continuing the essential services of the hospitals during the emergencies. These services include back up arrangements for

water, power, the availability of ambulances, laboratory services and sterile supply.

In the present study, all the facilities had 24*7 hours electricity and water supply available. Generator back up was available in all of the facilities except for one PHC and reserve water tank was available in all except one CHC. In contrast to this finding, Phalkey *et al* (2012), Ingrassia *et al* (2016), Woyessa *et al* (2020) and Yari *et al* (2021), in their study reported that essential services like electricity and safe drinking water were not adequate and majority of the evaluated hospitals were not sufficiently prepared to support hospital needs during disasters.

In present study all the facilities had oxygen supply, this might be as a result of the shortage faced during COVID-19 pandemic, after which PM CARES fund approved allocation of funds for setting up 551 pressure swing adsorption (PSA) medical oxygen generation plants at public health facilities to ensure adequate oxygen availability. [60]

Well-developed safety and security services are essential for the maintenance of hospital functions and for incident response operations during a disaster. In present study, security room was available in only 17.6% of the facilities. Similarly, Yari *et al* (2021) reported that 20% of the facilities had security room.

An efficient ambulance service is an essential part of the casualty service for the transportation of casualties from the scene of disaster to hospitals or to the first referral unit. Round the clock ambulance services were available in most of the healthcare facility except for all PHC and CHC which had it available on call. Whereas, Woyessa *et al* (2020) reported that type C ambulances having basic life support were available for transportation during emergency but was not in sufficient numbers.

In the present study, 64.7% of the facilities had fire extinguisher available in the facility. Yari *et al* (2021) reported that 25% of the facilities had availability of fire extinguisher.

In the current study, personal protective equipment was present in all facilities. In contrast with this, Yari *et al* (2021) reported that only 18.7% of the facilities had personal protective equipment available in healthcare facilities of Iran and Woyessa *et al* (2020) reported that protective equipment were available but were insufficient in healthcare facilities of Western Ethiopia.

2.5 Availability of Manpower at different levels

As such there is no specific guidelines for number of staff in case of disaster by NDMA, India. We have compared the staff availability with IPHS standards 2012.

2.5.1 Availability of manpower for emergency services at PHCs.

Human resources are a challenge during all disasters and more pronounced in rural settings. General duty medical officer was available in all of the PHCs as per the requirement. AYUSH Medical officer, though not essential but desirable, were available in six out of eight PHCs. This shows the intent of state government for inclusion of AYUSH professionals which in return, may serve a crucial role in disaster management. There was a 12.5% deficiency of pharmacist and laboratory technician. There was 25% deficiency in availability of ward boys. According to Rural Health Statistics 2021-2022, there is 3.1% shortfall of allopathic doctors at PHC in rural areas of India. [61]

2.5.2 Availability of manpower for emergency services at CHCs

In current study, posts of public health specialist, public health nurse, anaesthetist and driver were vacant at all four CHCs. There was 75% deficiency in availability of general surgeon, paediatrician and OT technician at CHCs. In half of the CHCs, physician, dental surgeons and AYUSH pharmacist were available as per the requirement. There was 25% deficiency in availability of obstetrician and gynaecologist and emergency medical officer at CHCs. There was 17.5% deficiency in nursing staff at CHCs. According to Rural Health Statistics 2021-2022, there is 83.2% shortfall of surgeons, 74.2% of obstetrician and gynaecologist, 79.1% of physician and

81.6% of paediatrician with overall shortfall of 79.5% of total specialist at CHC level in rural India. [61] Availability of specialist at level of CHC will decrease unnecessary referral to the higher centre especially SDH and DH and decrease the work load both ways.

2.5.3 Availability of manpower for emergency services at sub-divisional hospital

In present study, post of public health specialist, paediatrician, anaesthetist and OT technician were vacant at SDH. There was 75% deficiency in availability of laboratory technician, 57.2% in emergency medical officer, 44.4% in staff nurses at SDH.

2.5.4 Availability of manpower for emergency services at district hospital

In present study, post of public health specialist, nurse and pharmacist AYUSH were vacant. There was 66.6% deficiency in availability of general surgeon, 25% in paediatrician, 53.4% in emergency medical officer, 42.8% in staff nurse, 50% in pharmacist, 33.3% in laboratory technician and 37.5% deficiency in OT technician. A shortage of staff means that those available are already overwhelmed by work and if any emergency or disaster occurs more burden will be put on them creating a potentially negative impact on their response. Even incorporation of staff from other departments of the hospital will further create a gap in those departments, also hampering the disaster response and compromising routine patient care.

3 Knowledge regarding disaster preparedness among healthcare workers

3.1 Emergency Plan

In present study**,** out of total 122 healthcare workers, 22.1% reported that their health facility had a disaster management plan. This was in concordance with the findings of study done by Ncube and Chimenya (2016), in which 28.6% of the participants reported that their facility had a disaster plan. In contrast to this finding, in study conducted by Fung *et al* (2008) among nurses of Hong Kong,

84.8% of healthcare workers reported that their facility had a disaster management plan.

An emergency plan will help the HCWs by guiding their emergency actions and facilitating recovery efforts and eventually reducing the impact of an emergency event. In present study 78.6% of healthcare workers felt the need of disaster management plan. Similarly, 85.4% of healthcare workers reported the need of plan in study conducted by Fung *et al* (2008).

In present study about 23% of HCWs reported that their health facilities were able to effectively manage last disaster/ public health emergency faced. This finding was in concordance with the study conducted by Ncube and Chimenya (2016), in which 19.8% of healthcare workers reported that their facility was adequately prepared to manage any type of disaster or emergency. A study conducted by Treat *et al* (2001) in Federal emergency Management Agency Region III, US revealed that none of the participants in the study believed that their healthcare facility was fully prepared to handle a biological disaster.

3.2 Knowledge about emergency command, triage and emergency code system among healthcare workers

Emergency or incident command system provides the overall technical leadership and oversight for all aspects of crisis management, coordinates the overall response, approves all action, response and mitigation plans, and serves as an authority on all activities and decisions.[58] In present study, 75.4% of healthcare workers reported that their facility had a dedicated emergency department. This finding was in concordance with study conducted by Naser and Saleem (2018) among healthcare workers of Yemen, in which 64% of the healthcare workers reported that their facility had a dedicated disaster management committee. In contrast, Woyessa *et al* (2020) revealed that none of the facility had a responsible committee for emergency situations.

Triage is the process of categorizing and prioritizing patients with the aim of providing the best care to as many patients as possible

with the available resources.[58] In current study, 79.5% of healthcare workers were familiar with term triage and 70.4% of the healthcare workers reported that their facility uses the triage system. In a study conducted by Sharma and Sharma (2020) in Rajasthan, India, 55.2% of healthcare workers reported that their facility uses triage system.

Emergency codes are coded messages usually announced over a public address system to alert the staff and to inform them about various emergency situations in hospitals. [62] In present study, only 45% of HCWs reported that their facilities had an emergency code system and out of this none was from PHCs and SDH.

3.3 Knowledge about training and drills among healthcare workers

Lack of trained staff in the healthcare facilities, poses a special challenge during any disaster. Training of staff holds the key to effective and optimum use of available resources. Practical drills, evidence-based theory sessions, policy analysis activities, and most essentially regular updating of knowledge should be done through training and drills. In the present study all the healthcare workers reported that their facility had experienced a disaster in past five years. Similarly, 91% of healthcare workers reported that their facility faced a disaster in past five years in a study by Sharma and Sharma (2020). This might be due to recent COVID-19 pandemic, after which these studies were conducted.

In current study, 95.9% of healthcare workers had participated in training regarding disaster preparedness in last one year. Naser and Saleem (2018) reported that 82.5% of the healthcare workers in Yemen and Sharma and Sharma (2020) reported that 69% of the healthcare workers in Rajasthan, India had participated in training regarding disaster preparedness.

It was observed in the present study that 64.7% healthcare workers had reported that their healthcare facilities had conducted mock drills. In contrast to this finding, Treat *et al* (2001) reported that 23% of healthcare workers had participated in disaster preparedness

trainings and 20% healthcare workers reported that their facility had conducted drills regarding disaster management.

More frequent training and drills are essential to accustom the staff as the retention of knowledge regarding disaster plan is directly related to the time since the last training session.

3.4 Knowledge about communication, surveillance and stockpile among healthcare workers

Communication plays an important role especially during the initial stage of disaster and the element of surveillance involves the ability to maintain and improve the systems and network to monitor, detect and investigate the potential hazard. In the present study, all of the healthcare workers reported that their health facilities had a system to communicate with other health facilities, government office or media (Table 25). This finding was in concordance with the study done by Treat *et al* (2001) which reported that all the facilities had an established network of communication.

In current study, all the healthcare workers reported that the disaster supplies were inventoried, secured and labelled as 'FOR DISASTER USE ONLY' and kept separately (Table25). Similarly, in study done by Ambat and Vyas (2020), it was revealed that 83.3% of the healthcare workers reported stockpiling of emergency drugs for disaster management. In a study conducted by Sharma and Sharma (2020), 65.5% of the healthcare workers reported that their facility had emergency stock available to deal with emergency situation.

In contrast to this finding, in a study done Farley JM (2016), only 38.7% of healthcare workers reported that their facility had enough supply to maintain during any disaster situation. In a study done by Gilmore *et al* (2007), 26.7% of healthcare workers reported about stockpiled equipment and pharmaceuticals.

3.5 Knowledge about surge capacity among healthcare workers

Surge capacity has been defined as encompassing potential patient beds; available space in which patients may be triaged, managed,

vaccinated, decontaminated, or simply located; available personnel of all types; necessary medications, supplies and equipment; and even the legal capacity to deliver healthcare under situations which exceed authorized capacity. [63]

In time of disaster, the hospitals are anticipated to stay functional and continue to provide care to the patients. Having professional, experienced, active and up to date response team at the scene of disaster is one of the key aspects of checking the quality-of-service delivery during the time of disaster. Therefore, having a rapid response team is necessary and one of the main components for measuring the functional preparedness of a facility. In the present study 91% of healthcare workers reported that their facilities had a mobile team for rescue or rapid response team (Table 27), where as in a study done in Iran by Yari *et al* (2021), 41.8% of the facilities had availability of rapid response team.

In the present study all of the healthcare workers reported that their facilities had 24 hours water and power supply and 99.1% reported that their facility had electricity back up (Table 27).

In a study done by Gilmore *et al* (2007), 31.7% of healthcare workers reported that their facility had sufficient surge capacity.

Ingrassia *et al* (2016) in their study reported that most of the assessed hospitals in Italy were not well prepared in respect to surge capacity, human resources and logistics.

4. Perception / suggestion regarding disaster preparedness

Some open-ended questions were included in the study to know the perception of healthcare workers regarding disaster preparedness. Majority of the healthcare workers reported that disaster preparedness in their facilities was not adequate and hence suggestions were given by HCWs to improve the preparedness and response to any disaster.

4.1 Suggestions to improve disaster management capacity and protocol in healthcare facilities

- Increase in availability of equipment, manpower and requirement of funding.

- Need of disaster management plan.
- More frequent training and drills required.
- Disaster management plan should include disasters other than floods.
- Separate trauma wing is required.
- Emergency services other than 24*7 delivery should be made available at primary healthcare level.

In present study, 37.7% of HCWs suggested that there was need for increase in availability of equipment, manpower and funding. About 23% of respondents suggested that there was a need of disaster management plan.

In a study done by Naser and Saleem (2018), 71% of the participants felt the need of disaster plan.

In present study, need for more frequent trainings and drills was felt by 21.3% of the HCWs.

In study by Sharma and Sharma (2020), 93% of the HCWs emphasized the importance of the public health emergency training programme.

It was suggested by 2.4 % HCWs from PHCs that emergency services other than 24*7 delivery should be made available at primary healthcare level. Around 2% of respondents suggested that disaster management plan should include disaster other than floods and separate trauma wing was required. As state of Punjab is flood prone, disaster preparedness earlier mainly focussed on preparations for floods. [64] After COVID-19 pandemic, the situation has changed and there is need for preparation for both internal and external disasters.

4.2 Suggestions about training and drills regarding disaster preparedness

- Trainings and drills should be conducted more frequently for all staff.
- Trainings for paramedical staff and class IV workers are required.
- Trainings and drills for internal disaster should be conducted.
- Trainings should be given at the time of joining.

- Trainings should be given in offline mode.
- Trainings and drills other than fire safety should be included.
- May I Help counter' should be there.

Half of the respondents felt that trainings and drills should be conducted more frequently for all staff. One of the respondents suggested that 'May I help counter' should be present at the facility. About 28% of HCWs suggested that trainings for paramedical staff and class IV workers were required. It was suggested by 2.4% of respondents that trainings and drills for internal disaster should be conducted and 1.6% of the respondents suggested that trainings should be given at the time of joining and in offline mode. In study by Naser and Saleem (2018), 82.5% of HCWs reported that training for disaster management should be conducted in the facility.

Alakeely et *al* (2021) in their qualitative study done on preparedness of primary healthcare leaders in Saudi Arabia, conducted in-depth interviews and generated themes of unpreparedness for pandemic, impact on service delivery and fears/concerns among the staff and in community. Many participants in their study revealed that the training has been given but it lacked focus on prevention of large infectious outbreaks. Other quoted about services of large tertiary care hospital were drastically affected because of staff getting infected and more measures aimed to support and protect staff so that services run smoothly must be implemented. Lack of readiness was attributed to absence of clear guidelines. Capacity building for enhanced services delivery and increasing compliance was suggested by interviewees. [65]

SUMMARY AND CONCLUSION

The present study “A study on disaster preparedness among healthcare facilities in Ludhiana district” was carried out in different healthcare facilities (HCFs) of primary, secondary and tertiary level. Total 17 HCFs were visited and 122 healthcare workers (HCWs) were interviewed.

DEMOGRAPHIC PROFILE

- Eight primary health centres, four community health centres, one sub divisional hospital, one district hospital, two private hospitals and one medical college were covered.
- Total 122 healthcare workers were interviewed, out of which 29.5% were doctors (medical superintendent (MS)/ senior medical officer (SMO)/ emergency medical officer (EMO)/ medical Officer (MO), 27.0% were nursing staff (NS), 19.7% were laboratory technicians (LT) and 23.8% were pharmacists.
- Females HCWs were more in number (59.8%) as compared to males HCWs (40.2%).
- Maximum healthcare workers (42.6%) were in the age group of 31-40 years
- Maximum HCWs (37.7%) had experience for 1-10 years.

DISASTER PREPAREDNESS CHECKLIST

- Both the private hospitals, the medical college and one PHC had the emergency plan.
- Incident command system was present in one private hospital and medical college.
- Colour coded job action cards were present in only one private hospital.
- Communication system was well established in all of the healthcare facilities.

- Trainings regarding disaster management/ public health emergency in last 5 years were conducted by both the private hospitals, medical college, DH, SDH, three CHCs and six PHCs
- 24*7 hours electricity and water supply were present in all healthcare facility.
- Personal protective equipment were present in all facilities.
- Emergency warning system was present in only private hospitals, medical college and district hospital.
- AYUSH Medical officer, though not essential but desirable, were available in six out of eight PHCs.
- Pharmacist AYUSH (non-essential) was present in four of PHCs.
- Blood storage facility was not available at any CHC.
- Temporary morgue facility was available only in DH and medical college.
- Triage area was not available in two out of four CHCs and seven out of eight PHCs.
- Fire alarm system was not available in all of PHCs and two out of four CHCs.
- CCTV system was available in all HCFs except for six out of eight PHCs.
- Safety, hazard and caution signs were not displayed at five of eight PHCs.
- On the way signage of health facility and location on all approach roads was not present in six PHCs.
- Fluorescent fire exit signage was not displayed in any of CHC and five out of eight PHCs.
- State/District helpline number were not displayed in local language in medical college and six of PHCs.
- Triage tags were not available in PHCs, CHCs, DH and one private hospital.
- Blood bank refrigerator and storage unit was not available at any of the CHC.

- Deficiency of 12.5% was observed regarding pharmacist and laboratory technician and Ward boys were deficient by 25%. Posts of public health specialist, public health nurse, anaesthetist and driver were vacant at all four CHCs. Nursing staff was deficient by 17.5% at CHCs.
- Post of general surgeon, paediatrician and OT technician were vacant at three out of four CHCs and post of obstetrician and gynaecologist and general duty/ emergency medical officer was vacant at one of the CHCs.
- Post of public health specialist, paediatrician, anaesthetist and OT technician were vacant at SDH. Deficiency in availability of laboratory technician, emergency medical officer, staff nurses were 75%, 57.2% and 44.4% respectively at SDH.
- Post of public health specialist, nurse and pharmacist AYUSH were vacant at district hospital at DH. There was 66.6% deficiency in availability of general surgeon, 25% in paediatrician, 53.4% in emergency medical officer, 42.8% in staff nurse, 50% in pharmacist, 33.3% in laboratory technician and 37.5% deficiency in OT technician at DH.

KNOWLEDGE REGARDING DISASTER PREPAREDNESS AMONG HEALTHCARE WORKERS

- Out of total 122 HCWs, 22.1% reported that their health facility had a disaster management (DM) plan.
- None of the HCWs of CHCs, DH and SDH reported about having disaster management plan.
- Only about 23% of HCWs reported that their health facilities were able to effectively manage last disaster/ public health emergency faced.
- Around 79% HCWs felt that their facility needs a disaster management plan.

- All HCWs from CHCs, DH, SDH, both private hospitals and medical college reported that their facilities had a dedicated emergency department with a designated command in-charge.
- Out of 122 of total HCWs, 79.5% had knowledge about triage.
- From PHCs, 68.5% HCWs had knowledge about triage but only 18.7% reported that their PHCs use the triage system.
- Only 45% of HCWs reported that their facility had an emergency code system and out of this none was from PHCs and SDH.
- Majority (95.9%) of HCWs had participated in training regarding disaster preparedness in last one year.
- Around two third of HCWs reported that their healthcare facilities had conducted mock drills
- None of the PHCs had conducted any mock drills.
- All of the HCWs reported that their health facilities had a system to communicate with other health facilities, government office or media and had notification system to notify on-duty and off- duty staff about emergency status.
- Availability of mobile rescue team was reported by 97.2% of MO,96.6% of NS, 79.2% of LT and 86.2% of pharmacist ($p<0.05$).
- Availability of fire alarm system was reported by nearly half of the HCWs ($p>0.05$).

SUGGESTIONS TO IMPROVE DISASTER MANAGEMENT CAPACITY AND PROTOCOL IN HEALTHCARE FACILITIES

- Need for increase in availability of equipment, manpower and funding.
- Need of disaster management plan.
- Need for more frequent trainings and drills regarding disaster management.
- Emergency services other than 24*7 delivery services should be made available at primary healthcare level.
- Disaster management plan should include disasters other than floods and separate trauma wing is required.

- Trainings and drills should be conducted more frequently for all staff.
- Trainings for paramedical staff and class IV workers are required.
- Trainings and drills for internal disaster should be conducted.
- Trainings should be given at the time of joining and in offline mode and there should be trainings and drills other than that for fire safety.
- ‘May I help counter’ should be present at the facility.

LIMITATIONS

Despite of the best efforts, the following were the limitations of the present study:

• The study included 25% of the healthcare facilities in Ludhiana district and its results may not be a true representative of Punjab and India.

• Non-response bias- Few participants did not respond to the open-ended questions in the questionnaire.

• Recall bias- Healthcare workers were asked retrospective information about many determinants. Hence, recall bias is unavoidable.

• The study was conducted post the COVID-19 pandemic, which might have some impact over the observations and data collected.

RECOMMENDATIONS

On the basis of the results obtained, following are the recommendations

- Proper disaster management safeguards the lives of both victim and rescuers, therefore, a disaster management plan should be made mandatory for all the healthcare facilities at all the levels and non-compliance to it should be penalised.
- Disaster plan should be well documented and should be easily accessible to all the staff of the healthcare facility. Printed charts and copy of all relevant guidelines regarding disaster management should be given to all the staff.
- Disaster plan should include arrangement for cancellation of non-emergent services and rapid transfer of patients from emergency to in-patient.
- Disaster plan should be periodically evaluated and updated accordingly.
- All the healthcare facilities should have incident command system and job action card which detail out the standard operating procedures during disaster.
- Manpower, Infrastructure, functional equipment and all other essential and supportive services should be ensured as per Indian Public Health Standards.
- A continuous assessment of preparedness for disaster through periodic training and drills should be done. Training and drills should be conducted for all the staff at all levels.
- Emergency funds for disaster management should be kept separately.
- Disaster management should be a part of curriculum of all medical and para-medical students.
- Government should enforce disaster management and training as a part of orientations and CME programmes in both public and private healthcare facilities.

- Government should emphasize on awareness about disasters and training on disaster management among public.
- Post disaster counselling for patients and healthcare workers should be provided.

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KEY TO MASTER CHART **Section- I**	
Does health facility have an emergency plan?	**EQ1**
Yes	1
No	2
Is this plan documented in writing?	**EQ2**
Yes	1
No	2
Is the plan accessible to all staff?	**EQ3**
Yes	1
No	2
Does the plan include arrangement for rapid transfer of emergency department patient to in-patient?	**EQ4**
Yes	1
No	2
Does the plan include arrangement to cancel non-emergent services?	**EQ5**
Yes	1
No	2
Has this health facility given printed charts and copy of all relevant guidelines regarding public health emergency management to the medical staff?	**EQ6**
Yes	1
No	2
Has the plan been evaluated and updated in last 5 years?	**EQ7**
Yes	1
No	2
Does the health facility have Incident command system?	**EQ8**
Yes	1
No	2
Are colour coded job action cards present?	**EQ9**
Yes	1
No	2

Does the health facility have public health emergencies report or register system?	**EQ10**
Yes	1
No	2
Does the health facility have emergency warning system?	**EQ11**
Yes	1
No	2
Does the health facility have a system to communicate with other health facilities/government office/media?	**EQ12**
Yes	1
No	2
Does this health facility have any notification system to notify on-duty and off-duty staff about emergency status?	**EQ13**
Yes	1
No	2
Does the health facility conduct/participate in epidemiological surveillance?	**EQ14**
Yes	1
No	2
Have the health facility conducted training regarding disaster management/ public health emergency in last 5 years?	**EQ15**
Yes	1
No	2
Have the health facility conducted drills for preparedness of disaster management/ public health emergency?	**EQ16**
Yes	1
No	2
Does the health facility have protocol for transportation of suspected samples?	**EQ17**
Yes	1
No	2
Are the disaster supplies labelled as 'FOR DISASTER USE ONLY' and kept separately?	**EQ18**

Yes	1
No	2
Does the health facility have proper protocol for transferring patients to higher facility?	**EQ19**
Yes	1
No	2
Does the health facility have following contact numbers?	**EQ20**
All staff members	1
Nearest police station	2
Civic authorities	3
District medical authorities	4
Other health facilities	5
Media	6
NGOs	7
Volunteer	8

OPD rooms	**IGQ1**
Yes	1
No	2
Emergency room	**IGQ2**
Yes	1
No	2
OT room	**IGQ3**
Yes	1
No	2
Xray room	**IGQ4**
Yes	1
No	2
Labour room	**IGQ5**
Yes	1
No	2
Laboratory	**IGQ6**
Yes	1
No	2
Pharmacy	**IGQ7**
Yes	1
No	2
Blood storage unit	**IGQ8**
Yes	1
No	2
Biomedical waste management system	**IGQ9**
Yes	1
No	2

Storage area for sterile supplies	**IGQ10**
Yes	1
No	2
Storage area for emergency supplies	**IGQ11**
Yes	1
No	2
Nursing station	**IGQ12**
Yes	1
No	2
Mortuary	**IGQ13**
Yes	1
No	2
Telephone service 24*7 available	**IGQ14**
Yes	1
No	2
Residential area for staff	**IGQ15**
Yes	1
No	2
Oxygen supply (piped/cylinder)	**IGQ16**
Pipe	1
Cylinder	2
Both	3

Proper entry to emergency area	**IEQ17**
Yes	1
No	2
No. of Beds in emergency	**IEQ18**
Triage area	**IEQ19**
Yes	1
No	2
Isolation room/ beds	**IEQ20**
Yes	1
No	2
Patient waiting room	**IEQ21a**
Yes	1
No	2
Separate area of entry in emergency for infected/ contaminated patients	**IEQ21b**
Yes	1
No	2
Extra beds in case of disaster	**IEQ22**
Yes	1
No	2
Minor OT/ sterile dressing room	**IEQ23**
Yes	1
No	2

Exit door under direct access without lock and key	**IEQ24**
Yes	1
No	2
Location/Area to accommodate patient during mass casualty	**IEQ25**
Temporary morgue facility in case of mass casualty	**IEQ26**
Yes	1
No	2
Electricity for 24*7 available	**IPQ27**
Yes	1
No	2
Emergency lighting/portable light	**IPQ28**
Yes	1
No	2
Generator back up	**IPQ29**
Yes	1
No	2
Water supply for 24*7 available	**IPQ30**
Yes	1
No	2
Reserve emergency water tank	**IAQ31**
Yes	1
No	2

No. of ambulance available	**IAQ32**
Stretcher and basic life support fitting in ambulance	**IAQ33**
Yes	1
No	2
Round the clock ambulance service available	**IAQ34**
Yes	1
No	2
Fire alarm system	**IFQ35**
Yes	1
No	2
Ramp	**IFQ36**
Yes	1
No	2
Safety stair case	**IFQ37**
Yes	1
No	2
Total number of guards posted	**ISQ38**
Security room	**ISQ39**
Yes	1
No	2
CCTV	**ISQ40**
Yes	1
No	2

On the way signage of health facility and location on all approach roads	**SQ1**
Yes	1
No	2
Emergency entry signage illuminated in local language	**SQ2**
Yes	1
No	2
Emergency exit signage illuminated and in local language	**SQ3**
Yes	1
No	2
Safety, hazard and caution signs displayed at relevant places.	**SQ4**
Yes	1
No	2
Fluorescent fire exit signage	**SQ5**
Yes	1
No	2
State/District helpline number displayed in local language	**SQ6**
Yes	1
No	2

Triage tags	**EEQ1**
Yes	1
No	2
Crash carts and trolley	**EEQ2**
Yes	1
No	2
Personal protective equipment	**EEQ3**
Yes	1
No	2
ECG machine	**EEQ4**
Yes	1
No	2
Standard surgical kits	**EEQ5**
Yes	1
No	2
Equipment for anaesthesia	**EEQ6**
Yes	1
No	2
First Aid kits	**EEQ7**
Yes	1
No	2
Public Address System	**EEQ8**
Yes	1
No	2
Fire extinguisher	**EEQ9**
Yes	1
No	2

Sand buckets	**EEQ10**
Yes	1
No	2
Blood bank refrigerator	**EBTQ11**
Yes	1
No	2
Blood storage unit	**EBTQ12**
Yes	1
No	2
Deep freezers	**EBTQ13**
Yes	1
No	2
Insulated carrier boxes	**EBTQ14**
Yes	1
No	2
Microscope and centrifuge	**EBTQ15**
Yes	1
No	2
Binocular microscope	**ELQ16**
Yes	1
No	2
Ice box	**ELQ17**
Yes	1
No	2
Refrigerator	**ELQ18**
Yes	1
No	2
Sample transportation box	**ELQ19**
Yes	1
No	2
Sterile leak proof container	**ELQ20**
Yes	1
No	2

Section- II		**Is the plan accessible to all medical staff?**	**EPQ1A**
Gender			
Female	1	Yes	1
Male	2	No	2
Designation		**Does plan include planning to manage 25% increase in patients in all units?**	**EPQ1B**
MS	1		
MO/EMO	2		
Nurses	3	Yes	1
Laboratory technician	4	No	2
Pharmacist	5	**Does this plan include arrangements to cancel non-emergent services?**	**EPQ1C**
Qualification			
MBBS MD	1		
MBBS	2	Yes	1
GNM	3	No	2
B.sc Nursing	4	**Has the health facility given pre-printed charts /copy of all relevant guidelines regarding disaster management to all the staff members?**	**EPQ2**
DMLT	5		
D Pharma	6		
Clinical Microbiology	7		
Does this facility have a disaster preparedness plan?	**EPQ1**		
Yes	1	Yes	1
No	2	No	2
Are the state/district helpline numbers prominently displayed at your health care facility?	**EPQ3**	**Do you think your health facility needs a Disaster preparedness plan?**	**EPQ4**
Yes	1	Yes	1
No	2	No	2
Do you think your health facility is adequately prepared to manage any type	**EPQ5**	**Any suggestions to improve the disaster management capacity and protocol in your health facility?**	**EPQ7**

of disaster or emergency?			
Yes	1	Its adequate	1
No	2	Need a DM plan	2
If yes why	**EPQ5a**	Increase in availability of equipment and manpower	**3**
Its adequate	1	Increase funding	4
If no why	**EPQ5b**	More frequent training and drills	5
Less manpower	1	emergency service other than delivery at PHC	6
No emergency services available	2	DM plan should include disaster other than flood	7
Not adequate	3	Separate trauma wing is required	8
Do you think your health facility was able to effectively manage last disaster/ public health emergency faced?	**EPQ6**	**If yes, who is the person in charge?**	**ECSQ2a**
Yes	1	EMO	1
No	2	MO	2
Yes	1	Yes	1
No	2	No	2

Does this health facility have a dedicated emergency department?	**ECSQ1**
Yes	1
No	2
Is there any command in charge in case of disasters and emergencies?	**ECSQ2**
Yes	1
No	2
If yes, who is the person in charge?	**ECSQ2a**
EMO	1
MO	2
Nodal officer	3
Zonal director	4
Does the command officer develop standard job instructions (job action cards) that briefly list instructions for the key individuals in the respective areas to enable them to carry out their duties effectively?	**ECSQ3**
Yes	1
No	2
Are these job action cards colour coded	**ECSQ3a**
Yes	1
No	2
Are these job action cards easily accessible?	**ECSQ3b**
Yes	1
No	2

Are you familiar with the term triage?	**TEQ1**
Yes	1
No	2
If yes, can you explain?	**TEQ1a**

Who do you think should know about triage?	**TEQ2**
Doctor	1
Nurse	2
Pharmacist	3
Laboratory Technician	4
Emergency Medical Technician	5
Does this health facility use the triage system?	**TEQ3**
Yes	1
No	2
Does the health facility have any emergency code system?	**TEQ4**
Yes	1
No	2
If yes, what are the emergency codes that are used in your health facility?	**TEQ4a**

Have this health facility experienced any disaster in past 5 years/after you have joined?	**TDQ1**
Yes	1
No	2
If yes, when was the last time that health facility has experienced any disaster?	**TDQ1a**
If yes, what was the last disaster experienced by this health facility?	**TDQ1b**

Has the health facility designated a person in-charge of training for disaster preparedness?	**TDQ2**
Yes	1
No	2
If yes, what is the designation of the concerned person?	**TDQ2a**
Have you participated in disaster preparedness training in the last one year?	**TDQ3**
Yes	1
No	2
If yes, where was this training given?	**TDQ3a**
if yes, for how long the training was given?	**TDQ3b**
If yes, which topics were covered?	**TDQ3c**
How frequently training regarding disaster preparedness is given?	**TDQ4**
Does this health facility conduct mock drills regarding disaster preparedness?	**TDQ5**
Yes	1
No	2
If yes, how frequent these drills are conducted?	**TDQ5a**
If yes. When was the last drill conducted?	**TDQ5b**
Has the health facility conducted evacuation drill of all staff and patients present at the time of drill?	**TDQ5**
Yes	1
No	2
Do you have any suggestions about training and drills regarding disaster preparedness?	**TDQ7**

Does the health facility have a system to communicate with other health facilities, government office or media?	**CSQ1**
Yes	1
No	2
Is there any emergency warning system for disaster within all the departments for this health facility?	**CSQ2**
Yes	1
No	2
Does the health facility have any notification system to notify on-duty and off- duty staff of emergency status?	**CSQ3**
Yes	1
No	2
Is there any single platform (like WhatsApp) on which all the facility and field staff are available for communication and coordination?	**CSQ4**
Yes	1
No	2
Do you have any suggestions about improvement in communication system of your facility?	**CSQ5**
Does the health facility have designated in charge of emergency stock management?	**SPQ1**
Yes	1
No	2
Are the disaster supplies inventoried, secured and labelled as 'FOR DISASTER USE ONLY'	**SPQ2**
Yes	1
No	2

Does the health facility have PPE for all staff ?	**SPQ3**
Yes	1
No	2
Which Personal protective equipment is available?	**SPQ4**
Gloves	1
Surgical masks	2
Gowns	3
Goggles	4
Face shield	5
Head cover	6
Shoe cover	7
Respirator	8
Helmet	9
Vest	10

Does the health facility has a mobile team for rescue or rapid response ?	**SCQ1**	**Does the health facility has Electricity back up (generator)?**	**SCQ4e**
Yes	1	Yes	1
No	2	No	2
Who are the members of rescue team?	**SCQ2**	**Is ambulance facility available?**	**SCQ5**
Doctor	1	Yes	1
Nurse	2	No	2
Pharmacist	3		
Laboratory Technician	4		
In past how did the health facility maintained the adequate number of staff during an emergency event?	**SCQ3**		
Does the health facility has 24 hrs power supply available?	**SCQ4a**	**Is it Either govt. or private?**	**SCQ5a**
Yes	1	Government	1
No	2	Private	2
Does the health facility has 24 hours water supply arrangement?	**SCQ4b**	**No. of ambulance available?**	**SCQ5b**
Yes	1		
No	2		
Does the health facility has Mortuary arrangement?	**SCQ4c**	**Does the ambulance has stretcher and basic life support**	**SCQ5c**
Yes	1	Yes	1
No	2	No	2
Does the health facility has Fire alarm?	**SCQ4d**		
Yes	1		
No	2		

Section- III	
Does the disaster preparedness plan cover both internal and external disasters?	**MQ1**
Yes	1
No	2
Does this plan include arrangement for rapid transfer of emergency department to in-patient in emergency crisis?	**MQ2**
Yes	1
No	2
When was the plan last evaluated and updated?	**MQ3**
Yes	1
No	2
Does this health facility have disaster/emergency report or register system?	**MQ4**
Yes	1
No	2
Does the health facility have any separate triage area?	**MQ5**
Yes	1
No	2
Are triage tags always present in emergency department?	**MQ6**
Is the patient count that triggers the activation of triage system defined or not?	**MQ7**
Yes	1
No	2
If yes, what is that level?	**MQ7a**
Does the health facility conduct/participate in epidemiological surveillance at facility and community level to check any spike in any disease?	**MQ8**
Yes	1
No	2
Does the health facility share the surveillance information with local/state public health agencies?	**MQ9**

Yes	1
No	2
Can the health facility deal with surge in capacity of sample disposal when faced with emergency?	**MQ10**
Yes	1
No	2
Does the health facility have the protocol of transportation of suspected samples to another institute?	**MQ11**
Yes	1
No	2
Are laboratory reports of in-patients reviewed to check any spike in any disease?	**MQ12**
Yes	1
No	2
If any spike is noticed, who do you report to?	**MQ12a**
Is there a system to deal with increased demand of drugs during any emergency?	**MQ13**
Yes	1
No	2
If yes, explain.	**MQ13a**
Does the health facility maintain emergency funds?	**MQ14**
Yes	1
No	2
Have the health facility used these funds during last emergency crisis?	**MQ15**
Yes	1
No	2
Did the emergency fund meet the work needs?	**MQ16**
Yes	1

No	2
Does the health facility have any designated area to enlarge the capacity of receiving patients?	**MQ17**
Yes	1
No	2
Which area is planned to be utilized for additional beds for surge capacity?	**MQ18**
Does the health facility have enough staff to successfully perform normal services in an emergency crisis?	**MQ19**
Yes	1
No	2
Does the health facility have proper protocol for referring patient to higher health facility?	**MQ20**
Yes	1
No	2
Total no. of beds?	**MQ21a**
Extra no. of beds that could be added?	**MQ21b**
Does the health facility have oxygen supply (piped/cylinder)?	**MQ22**
Piped	1
Cylinder	2
both	3
Does the health facility have system to deal with increased volume of biomedical waste disposal in case of emergency crisis?	**MQ23**
Yes	1
No	2
Does the health facility have a separate team that deal with post-disaster recovery?	**MQ24**
Yes	1
No	2

Do you assess the physical and psychological well-being of staff involved in emergency crisis?	**MQ25**
Yes	1
No	2
Does the health facility provide psychological guidance for victims and medical staff?	**MQ26**
Yes	1
No	2
Is the Driver trained for basic life support ?	**MQ27**
Yes	1
No	2

Section IV	
Does the disaster preparedness plan cover both internal and external disasters?	**NSQ1**
Yes	1
No	2
Does this plan include arrangement for rapid transfer of emergency department to inpatient in emergency crisis?	**NSQ2**
Yes	1
No	2
Does this health facility have disaster/emergency report or register system?	**NSQ3**
Yes	1
No	2
Does this health facility have any emergency warning system for disaster?	**NSQ4**
Yes	1

No	2
Does the health facility have any separate triage area?	**NSQ5**
Yes	1
No	2
Are triage tags always present in emergency department?	**NSQ6**
Yes	1
No	2
Is the patient count that triggers the activation of triage system defined?	**NSQ7**
Yes	1
No	2
If yes, what is that level?	**NSQ7a**
Does the health facility have any designated area to enlarge the capacity of receiving patient?	**NSQ8**
Yes	1
No	2
Which area is planned to be utilized for additional beds for surge capacity?	**NSQ9**
Does the health facility have oxygen supply (piped/cylinder)?	**NSQ10**
Piped	1
Cylinder	2
both	3

In your opinion, what can be done to improve the services during an emergency situation?	**NSQ11**
Section - V	
Total number of laboratory Technicians posted in your health facility	**LTQ1**
Are laboratory reports of in-patient and emergency patient reviewed to check any spike in any disease?	**LTQ2**
Yes	1
No	2
If any spike is noticed, who do you report to?	**LTQ2a**
Can the health facility deal with surge in capacity of sample disposal when faced with emergency?	**LTQ3**
Yes	1
No	2
Does the health facility have the protocol of transportation of suspected samples to other organization?	**LTQ4**
Yes	1
No	2
By what means the laboratory service will manage to deal with increased influx of patients during a disaster?	**LTQ5**
In your opinion, what can be done to improve the services during an emergency situation?	**LTQ6**

Section- VI	
Total number of pharmacists posted in your facility?	**PhQ1**
Do you maintain the stock of emergency drugs and antidotes?	
Yes	1
No	2
Do you monitor the average daily /weekly/monthly medication demand/usage?	**PhQ2**
Yes	1
No	2
Do you maintain a separate record of high risk medication?	**PhQ3**
Yes	1
No	2
Do you use (FIFO) First In First Out principle?	**PhQ4**
Yes	1
No	2
How does the pharmacy services procure the increase demand of drugs during any emergency crisis?	**PhQ5**
How do you manage the expiry drugs?	**PhQ6**
If drugs are limited, how do you ensure the proper distribution in such situation?	**PhQ7**
In your opinion, what can be done to improve the services during an emergency situation?	**PhQ8**

*__ALL Not Applicable = 99__

**__ALL No Answer = 100__

S.NO	DATE	NAME OF FACILITY	Type	EQ1	EQ2	EQ3	EQ4	EQ5	EQ6	EPQ7	EQ8	EQ9	EQ10	EQ11	EQ12	EQ13	EQ14	EQ15	EQ16	EQ17	EQ18	EQ19	EQ20a
1	01-09-2021	PHC Hambran	primary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	2	1	2	1	1,2,3,4,5,6,7,8
2	15-12-2021	PHC Mullanpur	primary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	2	1	1	1	1,2,3,4,5,6,7,8
3	05-02-2022	PHC Mehdoodan	Primary	2	99	99	99	99	99	99	2	2	2	2	1	1	2	1	1	1	1	1	1,2,3,4,5,6,7,8
4	22-12-2021	PHC booparai kalan	Primary	2	99	99	99	99	99	99	2	2	2	2	1	1	1	2	2	1	1	1	1,2,3,4,5,6,7,8
5	04-02-2022	PHC ghawadi	Primary	2	99	99	99	99	99	99	2	2	2	2	1	1	1	2	2	1	1	1	1,2,3,4,5,6,7,8
6	14-10-2021	PHC mansooran	Primary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	2	1	1	1	1,2,3,4,5,6,7,8
7	06-10-2021	PHC Ladhowal	Primary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	2	1	1	1	1,2,3,4,5,6,7,8
8	03-09-2021	PHC Talwandi kalan	Primary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	2	1	1	1	1,2,3,4,5,6,7,8
9	16-10-2021	CHC Pakhowal	secondary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	2	2	1	1	1	1,2,3,4,5,6,7,8
10	18-11-2021	CHC sahnewal	secondary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
11	25-11-2021	CHC sidhwanbet	secondary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
12	11-11-2021	CHC Dehlon	secondary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
13	16-06-2021	Civil hospital	Secondary	2	99	99	99	99	99	99	2	2	1	1	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
14	02-02-2022	SDH Raikot	secondary	2	99	99	99	99	99	99	2	2	1	2	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
15	18-06-2021	Guru Teg Bahadur hospital	tertiary	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
16	11-02-2022	Fortis hospital	tertiary	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8
17	23-04-2022	DMC Hospital	tertiary	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1,2,3,4,5,6,7,8

S.NO	IGQ1	IGQ2	IGQ3	IGQ4	IGQ5	IGQ6	IGQ7	IGQ8	IGQ9	IGQ10	IGQ11	IGQ12	IGQ13	IGQ14	IGQ15	IGQ16	IEQ17	IEQ18	IEQ19	IEQ20	IEQ21a	IEQ21b	IEQ22	IEQ23	IEQ24
1	1	2	2	2	1	1	1	2	1	1	1	1	2	2	2	2	2	0	2	2	1	2	1	2	1
2	1	1	1	2	1	1	1	2	1	1	1	1	2	2	1	2	1	2	2	2	1	2	2	1	1
3	1	2	2	2	1	1	1	2	1	1	1	2	2	2	2	2	2	0	2	2	1	2	2	1	2
4	1	2	2	1	1	1	1	2	1	1	1	1	2	2	2	2	2	0	2	2	1	2	2	1	2
5	1	1	2	2	1	1	1	2	1	1	1	1	2	2	2	2	1	2	2	2	1	2	2	2	2
6	1	1	2	2	1	1	1	2	1	1	1	1	2	2	2	2	1	2	1	2	1	2	2	2	2
7	1	2	2	2	1	1	1	2	1	1	1	2	2	2	2	2	2	0	2	2	1	2	2	1	2
8	1	2	2	2	1	1	1	2	1	1	1	1	2	2	2	2	2	0	2	2	1	1	2	1	1
9	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	2	1	3	2	1	1	1	1	1	2
10	1	1	1	1	1	1	1	2	1	1	1	1	2	1	1	2	1	6	1	1	1	1	1	1	1
11	1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	3	2	4	2	2	1	2	2	1	2
12	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	3	1	1	1	2	1	1	2
13	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3	1	12	1	1	1	1	1	1	2
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	9	1	2	1	2	1	1	1
15	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	12	1	2	2	2	1	1	1
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	2	8	1	1	1	1	1	1	1
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	20	1	1	1	1	1	1	1

S.NO	IEQ25	IEQ26	IPQ27	IPQ28	IPQ29	IPQ30	IPQ31	IAQ32	IAQ33	IAQ34	IFQ35	IFQ36	IFQ37	ISQ38	ISQ39	ISQ40	SQ1	SQ2	SQ3	SQ4	SQ5	SQ6	EEQ1	EEQ2	EEQ3	EEQ4	EEQ5
1	1	2	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
2	2	2	1	2	1	1	1	1	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	1	1	2	1
3	2	2	1	2	2	1	1	1	2	1	2	2	2	2	2	2	1	2	2	2	2	1	2	2	1	2	2
4	2	2	1	2	1	1	1	1	2	1	2	2	2	2	2	2	1	1	1	2	2	1	2	1	1	2	1
5	2	2	1	2	1	1	1	1	2	1	2	2	2	2	2	1	1	2	2	1	1	1	2	2	1	1	1
6	1	2	1	1	1	1	1	1	2	1	2	2	2	2	2	2	2	1	1	1	1	1	2	1	1	2	1
7	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	2	2	2	2	1	2	2	1	1	1
8	1	2	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1	1	1	1	2	1	1	2	1
9	1	2	1	1	1	1	2	1	1	1	1	2	2	2	2	1	1	1	1	1	2	1	2	1	1	1	1
10	1	2	1	1	1	1	1	1	1	1	2	2	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1
11	1	2	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	2	2	1	2	1	2	1	1	1	1
12	1	2	1	1	1	1	1	1	1	1	2	2	2	2	2	1	1	1	1	1	2	1	2	1	1	2	1
13	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1
14	2	2	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
15	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1
16	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1

S.NO	EEQ6	EEQ7	EEQ8	EEQ9	EEQ10	EBTQ11	EBTQ12	EBTQ13	EBTQ14	EBTQ15	ELQ16	ELQ17	ELQ18	ELQ19	ELQ20	1.Block medical officer / medical superintendent	2.Public Health specialist	3.Public health Nurse	4.General surgeon	5.Physician
1	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	99	99	99	99	99
2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	99	99	99	99	1
3	2	2	2	2	2	2	2	1	1	1	2	1	1	2	2	99	99	99	99	99
4	2	1	2	2	2	2	2	2	2	2	1	2	2	2	2	99	99	99	99	99
5	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	99	99	99	99	99
6	2	1	2	1	2	2	2	1	1	1	1	1	1	1	1	99	99	99	99	99
7	1	1	1	2	2	2	2	1	1	2	1	1	1	1	1	99	99	99	99	99
8	2	1	2	1	2	2	2	2	1	1	1	1	1	1	1	99	99	99	99	99
9	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0	0	1	0
10	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0
11	1	1	2	1	1	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0
12	2	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	0	0	0	2
13	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	0	0	0	1	3
14	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	99	99	2	1
15	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	99	99	99	99	99
16	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	99	99	99	99	99
17	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	99	99	99	99	99

S.NO	6.Obstetrician Gynaecologist	7.Paediatrician	8.Anaesthetist	9.Dental surgeon	10.General duty / Emergency Medical Officer	Medical Officer-AYUSH	Staff Nurse	Pharmacist	Pharmacist AYUSH	15.Lab technician	Radiographer	OT technician
1	99	99	99	99	1	1	2	1	99	1	99	99
2	99	99	99	1	1	1	6	1	1	1	99	99
3	99	99	99	99	1	1	2	1	1	99	99	99
4	99	99	99	1	1	99	2	1	99	99	99	99
5	99	99	99	99	2	1	4	0	1	1	99	99
6	99	99	99	1	2	99	8	1	99	1	99	99
7	99	99	99	99	2	1	4	1	1	2	99	99
8	99	99	99	99	1	1	3	1	99	1	99	99
9	0	1	0	1	3	1	10	4	1	3	2	0
10	1	0	0	1	0	2	6	1	1	2	1	1
11	1	0	0	1	3	1	11	3	0	1	0	0
12	1	0	0	1	0	1	6	2	0	2	1	0
13	4	3	6	2	7	1	77	4	0	8	6	5
14	1	99	99	1	3	1	10	2	99	1	2	99
15	99	99	99	99	99	99	99	99	99	99	99	99
16	99	99	99	99	99	99	99	99	99	99	99	99
17	99	99	99	99	99	99	99	99	99	99	99	99

S.NO	Ophthalmic Assistant	Dental assistant	Cold chain & vaccine logistic Assistant	Community based rehabilitation worker	Counsellor	Registration Clerk	Data entry operator	Account assistant	26.Administrative assistant	Dresser	Ward boys	Driver
1	1	99	99	99	99	99	99	99	99	99	1	99
2	99	99	99	99	99	99	99	99	99	99	99	99
3	99	99	99	99	99	99	99	99	99	99	1	99
4	99	99	99	99	99	99	99	99	99	99	99	99
5	99	99	1	99	99	99	99	99	99	99	99	99
6	99	99	1	5	99	99	99	99	99	99	3	99
7	99	99	99	99	99	99	99	99	99	1	99	1
8	99	99	99	99	99	99	99	99	99	99	1	99
9	1	0	0	0	1	3	0	0	0	0	10	0
10	1	0	0	0	0	0	1	1	0	0	2	0
11	1	1	0	0	0	0	0	0	0	0	5	0
12	1	0	0	0	1	0	1	1	0	0	3	0
13	1	1	6	0	1	0	4	0	1	0	36	3
14	99	99	1		2	1	1	99	99	99	20	1
15	99	99	99	99	99	99	99	99	99	99	99	99
16	99	99	99	99	99	99	99	99	99	99	99	99
17	99	99	99	99	99	99	99	99	99	99	99	99

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position	Total Years of experience	EPQ1	EPQ1A	EPQ1B	EPQ1C	EPQ2	EPQ3	EPQ4	EPQ5	EPQ5A	EPQ5B	EPQ6	EPQ7	ECSQ1	ECSQ2	ECSQ2A	ECSQ3
1	9/1/2021	PHC Hambran	Dr Manpreet	26	1	2	2	1	1.5	2	99	99	99	2	2	1	2	99	100	2	4,5	2	2	99	2
2	9/1/2021	PHC Hambran	Jaspal kaur	40	1	3	3	5	16	2	99	99	99	2	1	1	2	99	100	2	3	2	2	99	2
3	9/1/2021	PHC Hambran	Hardeep singh	35	2	4	7	1.5	10	2	99	99	99	2	1	1	2	99	100	2	5	2	2	99	2
4	9/1/2021	PHC Hambran	Ramandeep kaur	50	1	5	6	30	32	2	99	99	99	2	1	1	2	99	99	2	6	2	2	99	2
5	12/15/2021	phc mullanpur	Dr damandeep kaur	46	1	2	1	11	12	2	99	99	99	2	1	1	2	99	100	2	3	1	1	2	2
6	12/15/2021	phc mullanpur	Dr chamandeep kaur	25	1	2	2	0.5	1	2	99	99	99	2	1	1	2	99	100	2	3	1	1	2	2
7	12/15/2021	phc mullanpur	kirandeep kaur	31	1	3	3	3	6	2	99	99	99	2	1	1	2	99	100	2	3	2	2	99	2
8	12/15/2021	phc mullanpur	sukhbir kaur	51	1	5	6	2	12	2	99	99	99	2	1	1	2	99	100	2	100	2	2	99	2
9	12/15/2021	phc mullanpur	lovepreet singh	40	2	4	5	1.5	17	2	99	99	99	2	1	1	2	99	100	2	100	2	2	99	2
10	2/5/2022	PHC Mehdoodan	Dr karanveer sing gill	26	2	2	2	1	1	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
11	2/5/2022	PHC Mehdoodan	Inderpal tiwari	56	2	5	6	9	30	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
12	2/5/2022	PHC Mehdoodan	Kamaldeep kaur	40	1	3	3	12	12	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
13	12/22/2021	PHC Boparai Kalan	Dr amandeep	40	1	2	1	5	10	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
14	12/22/2021	PHC Boparai Kalan	dimple	31	1	3	4	2	6	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
15	12/22/2021	PHC Boparai Kalan	Hardeep kaur	52	1	5	6	32	32	2	99	99	99	2	1	1	2	99	1	2	3	2	2	99	2
16	10/6/2021	PHC Ladhowal	Dr rupinder gill	50	2	2	1	15	21	1	1	1	1	1	1	1	2	99	100	2	7	2	2	99	2
17	10/11/2021	PHC Ladhowal	Dr Durgeshnandani	38	2	2	1	10	16	1	1	1	1	1	1	1	2	99	100	2	7	2	2	99	2
18	10/11/2021	PHC Ladhowal	William Masish	45	2	4	5	8	19	2	99	99	99	2	1	1	2	99	1	2	4,5	2	2	99	2
19	10/11/2021	PHC Ladhowal	Gurjit singh	30	2	5	6	0.8	4	1	100	100	100	2	1	1	2	99	100	100	100	2	2	99	2
20	10/11/2021	PHC Ladhowal	Meenakshi Sonia	35	1	3	3	9	15	2	99	99	99	2	1	2	2	99	100	2	6	2	2	99	2
21	2/4/2022	PHC Ghawaddi	Dr Jagroop kaur	52	1	2	2	12	13	2	99	99	99	2	1	1	2	99	2	2	6	2	2	99	2
22	9/3/2021	PHC Ghawaddi	Amandeep laur	38	1	3	3	12	16	2	99	99	99	2	1	1	2	99	1	2	2	2	2	99	2
23	2/4/2022	PHC Ghawaddi	veerpal kaur	37	1	3	3	0.25	11	2	99	99	99	2	1	1	2	99	2	2	3	2	2	99	2
24	2/4/2022	PHC Ghawaddi	Harwinder singh	38	2	4	5	2	10	2	99	99	99	2	1	1	2	99	100	2	3	2	2	99	2
25	9/3/2021	PHC Talwandi kalan	Dr Ankita	31	1	2	2	2.5	6	2	99	99	99	2	1	1	2	99	1	2	2	2	2	99	2
26	9/3/2021	PHC Talwandi kalan	gurpreet kaur	39	1	3	3	12	15	2	99	99	99	2	1	1	2	99	1	2		2	2	99	2
27	9/3/2021	PHC Talwandi kalan	manjeet singh	39	2	4	5	7	20	2	99	99	99	2	1	1	2	99	1	2	2	2	2	99	2
28	9/3/2021	PHC Talwandi kalan	Aikan gupta	25	1	5	6	0.6	0.6	2	99	99	99	2	1	1	2	99	1	2	2	2	2	99	2
29	10/14/2021	PHC Mansooran	Dr Ranjit	31	1	2	2	2.5	6	2	99	99	99	2	1	1	2	99	100	2	2	2	2	99	2
30	10/14/2021	PHC Mansooran	jasvir kaur	39	1	3	3	9	13	2	99	99	99	2	1	1	2	99	100	2	2	2	2	99	2
31	10/14/2021	PHC Mansooran	jaspreet kaur	49	1	4	5	1	28	2	99	99	99	2	1	1	2	99	100	2	2	2	2	99	2
32	10/14/2021	PHC Mansooran	maninder kaur	28	1	5	6	1.5	4	2	99	99	99	2	1	1	2	99	100	2	2	2	2	99	2
33	6/18/2021	GTB	Dr. Harish Sehgal	58	2	1	1	20	35	1	1	1	1	1	1	2	1	100	99	1	5	1	1	3	2
34	6/25/2021	GTB	Dr. Pushpinder singh	58	2	1	1	25	30	1	1	1	1	1	1	2	1	100	99	1	5	1	1	3	2
35	6/25/2021	GTB	Dr Neeraj	48	2	1	1	15	20	1	1	1	1	1	1	2	1	100	99	1	5	1	1	3	2
36	6/25/2021	GTB	Dr Sarleen kaur	28	1	2	2	0.9	0.9	2	99	99	99	2	1	1	2	99	100	100	2	1	1	3	2
37	6/18/2021	GTB	Dr Priyanka	30	1	2	2	0.04	5	2	99	99	99	2	1	1	2	99	100	100	2	1	1	3	2
38	6/18/2021	GTB	Prabhjot kaur	29	1	3	3	8	8	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
39	6/18/2021	GTB	jaspreet kaur	23	1	3	3	0.75	0.75	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
40	6/19/2021	GTB	Parminder kaur	25	1	3	3	4	4	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
41	6/19/2021	GTB	Gagandeep kaur	24	1	3	3	1	1	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2

S.NO	ECSQ3A	ECSQ3B	TEQ1	TEQ1A	TEQ2	TEQ3	TEQ4	TEQ4A	TDQ1	TDQ1A	TDQ1B	TDQ2	TDQ2A	TDQ3	TDQ3A	TDQ3B	TDQ3C	TDQ4	TDQ5	TDQ5A
1	99	99	1	prioritizing patient	1,2,3,4	2	2	99	1	2020	COVID -19	2	99	1	Civil Hospital	3 days	Covid 19 mamgement	once monthly	2	99
2	99	99	1	colour coding	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	3 Days	Covid 19 mamgement	six monthly	2	99
3	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	SMO	1	CHC sidhwanbet	2 days	covid 19 Sampling	six monthly	2	99
4	99	99	1	colour coding	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	SMO	1	CHC sidhwanbet	2 days	Covid 19 vaccination	monthly	2	99
5	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	MO	1	Civil Hospital	3 days	Covid 19	monthly	2	99
6	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	3 days	Covid 19	twice yearly	2	99
7	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	mo	1	ONLINE	3 days	covid 19	twice yearly	2	99
8	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	mo	1	ONLINE	2 days	covid 19	twice yearly	2	99
9	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	mo	2	99	99	99	99	2	99
10	99	99	1	colour coding	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	2 days	covid 19	twice yearly	2	99
11	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	2 days	covid 19	twice yearly	2	99
12	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	2 days	covid 19	twice yearly	2	99
13	99	99	1	colour coding	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	2 days	covid 19	twice yearly	2	99
14	99	99	1	colour coding	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	2 days	covid 19	twice yearly	2	99
15	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	2 days	covid 19	twice yearly	2	99
16	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	3 days	disaster management	twice yearly	2	99
17	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	3 days	disaster management	twice yearly	2	99
18	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	mo	2	99	99	99	99	2	99
19	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	mo	1	Civil Hospital	3 days	covid sampling	twice yearly	2	99
20	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	mo	1	Civil Hospital	3 days	covid management	twice yearly	2	99
21	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	2	99	2	99	99	99	99	2	99
22	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	phc	1 day	fire safety	monthly	2	99
23	99	99	1	prioritizing patient	1,2,3,4	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	1 day	covid 19	twice yearly	2	99
24	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	1 day	covid 19	twice yearly	2	99
25	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	phc	1 day	fire safety	monthly	2	99
26	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	phc	1 day	fire safety	monthly	2	99
27	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	phc	1 day	fire safety	monthly	2	99
28	99	99	1	prioritizing patient	1,2,3,4,5	2	2	99	1	2020	COVID -19	1	nodal officer	1	phc	1 day	fire safety	monthly	2	99
29	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	3 days	covid 19	monthly	2	99
30	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	3 days	covid 19	monthly	2	99
31	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	3 days	covid 19	monthly	2	99
32	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	SMO	1	ONLINE	3 days	covid 19	monthly	2	99
33	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
34	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
35	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
36	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
37	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
38	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
39	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
40	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
41	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly

S.NO	TDQ5B	TDQ6	TDQ7	CSQ1	CSQ2	CSQ3	CSQ4	CSQ5	SPQ1	SPQ2	SPQ3	SPQ4	SCQ1	SCQ2	SCQ3	SCQ4A	SCQ4B	SCQ4C	SCQ4D	SCQ4E	SCQ5	SCQ5A	SCQ5B	SCQ5C
1	99	2	Quaterly training and drills	1	2	1	1	100	1	1	1	1,2,3,6,7,8,	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	2
2	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	extra duties	1	1	2	2	1	1	1	call on 108	2
3	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	on call staff	1	1	2	2	1	1	1	call on 108	100
4	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	extra duties	1	1	2	2	1	1	1	call on 108	100
5	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
6	99	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,8	1	1,2,3,4	on call staff	1	1	2	2	1	1	1	call on 108	100
7	99	2	100	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
8	99	2	100	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,4	double duties	1	1	2	2	1	1	1	call on 108	100
9	99	2	100	1	2	1	1	100	1	1	1	1,2,3,6,7,8	2	99	refer to chc	1	1	2	2	1	1	1	call on 108	100
10	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
11	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
12	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
13	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
14	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
15	99	2	More training and drills , for class 4	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
16	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	refer to CHC	1	1	2	2	1	1	1	call on 108	100
17	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	refer to CHC	1	1	2	2	1	1	1	call on 108	100
18	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	2	99	100	1	1	2	2	1	1	1	call on 108	100
19	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2,3,4	refer to CHC	1	1	2	2	1	1	1	call on 108	100
20	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2	extra duty	1	1	2	2	1	1	1	call on 108	100
21	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,5,6,7,8	2	99	off duty staff	1	1	2	2	1	1	1	call on 108	100
22	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
23	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	refer to CHC	1	1	2	2	1	1	1	call on 108	100
24	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	2	99	refer to CHC	1	1	2	2	2	1	1	call on 108	100
25	99	2	Training to all staff	1	2	1	1	100	2	1	1	1,2,3,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
26	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
27	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
28	99	2	Training to all staff	1	2	1	1	100	1	1	1	1,2,3,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
29	99	2	more frequently	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	2	2	1	1	1	call on 108	100
30	99	2	more frequently	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	2	2	1	1	1	call on 108	100
31	99	2	more frequently	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	2	2	1	1	1	call on 108	100
32	99	2	more frequently	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	2	2	1	1	1	call on 108	100
33	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	1
34	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	1
35	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	1
36	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
37	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
38	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
39	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
40	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
41	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position	Total Years of experience	EPQ1	EPQ1A	EPQ1B	EPQ1C	EPQ2	EPQ3	EPQ4	EPQ5	EPQ5A	EPQ5B	EPQ6	EPQ7	ECSQ1	ECSQ2	ECSQ2A	ECSQ3
42	6/16/2021	GTB	Mariama Mathew	53	1	4	5	34	34	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
43	6/18/2021	GTB	Sunil kumar	46	2	4	5	2.5	22	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
44	6/19/2021	GTB	Avneet singh	23	2	5	6	1	1	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
45	6/19/2021	GTB	amandeep singh	26	2	5	6	3	3	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
46	6/19/2021	GTB	parminder singh	30	2	5	6	4	6	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
47	6/26/2021	Civil Hospital	Dr Amarjeet kaur	52	1	1	1	1	25	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
48	6/26/2021	Civil Hospital	Dr harprret singh	34	2	2	2	2	8.5	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
49	6/26/2021	Civil Hospital	DR Yashi gupta	24	1	2	2	0.5	0.5	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
50	6/16/2021	Civil Hospital	Dr Gurjinder kaur	31	1	2	2	0.25	4	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
51	6/16/2021	Civil Hospital	Usha	48	1	3	3	19	25	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
52	6/16/2021	Civil Hospital	Sandeep kaur	33	1	3	3	7	8	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
53	6/16/2021	Civil Hospital	sunil singh	23	2	3	3	0.16	2	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
54	6/16/2021	Civil Hospital	Parminder singh	42	2	4	5	7	19	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
55	6/16/2021	Civil Hospital	parminde kaur	35	1	4	5	4	12	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
56	6/26/2021	Civil Hospital	Arun kumar	56	2	5	6	18	39	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
57	6/26/2021	Civil Hospital	Niranjan singh	52	2	5	6	6	24	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
58	6/16/2021	Civil Hospital	neelam bhagat	52	2	5	6	6	25	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
59	10/16/2021	CHC Pakhowal	Dr sandeep kaur	57	1	1	1	2	32	2	99	99	99	2	1	1	2	99	1	2	4,5	1	1	3	2
60	10/27/2021	CHC Pakhowal	Dr Namrita	34	1	2	1	0.16	8	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
61	10/16/2021	CHC Pakhowal	Dr aman goyal 25	25	2	2	2	0.8	1	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
62	10/16/2021	CHC Pakhowal	Pritam kaur	57	1	3	3	30	31	2	99	99	99	2	1	1	1	100	99	1	100	1	1	3	2
63	10/27/2021	CHC Pakhowal	Harwinder kaur	36	1	3	3	10	12	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
64	10/27/2021	CHC Pakhowal	rajwinder kaur	27	1	4	5	2	5	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
65	10/27/2021	CHC Pakhowal	mandeep kaur gill	34	1	4	5	3	8	2	99	99	99	2	1	1	2	99	100	2	4,5	1	1	3	2
66	10/16/2021	CHC Pakhowal	jaspreet kaur	29	1	5	6	0.25	0.75	2	99	99	99	2	1	1	2	99	100	2	100	1	1	3	2
67	10/16/2021	CHC Pakhowal	Paramjet kaur	54	1	5	6	0.3	35	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
68	11/11/2021	CHC Dehlon	Dr Savita	50	1	1	1	1	25	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
69	11/11/2021	CHC Dehlon	Dr jasneev	53	1	2	2	15	28	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
70	11/15/2021	CHC Dehlon	iqbalminder kaur	55	1	3	3	17	30	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
71	11/15/2021	CHC Dehlon	Sukhminder kaur	49	1	3	3	8	20	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
72	11/11/2021	CHC Dehlon	Pardeep kaur	37	2	4	5	5	6	2	99	99	99	2	1	1	2	99	1	2	2	1	1	3	2
73	11/15/2021	CHC Dehlon	jimmy kapoor	33	2	5	6	0.8	7	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
74	11/11/2021	CHC Dehlon	karamjeet singh	54	2	5	6	15	33	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
75	11/18/2021	CHC Sahnewal	Dr Punam Goyal	56	1	1	1	3	28	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
76	11/18/2021	CHC Sahnewal	Balbir kaur	55	1	3	3	1	35	2	999	99	99	2	1	1	1	100	99	1	2	1	1	3	2

S.NO	ECSQ3A	ECSQ3B	TEQ1	TEQ1A	TEQ2	TEQ3	TEQ4	TEQ4A	TDQ1	TDQ1A	TDQ1B	TDQ2	TDQ2A	TDQ3	TDQ3A	TDQ3B	TDQ3C	TDQ4	TDQ5	TDQ5A
42	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
43	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
44	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
45	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
46	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue, pinl , purple , red brown	1	2020	COVID -19	1	nodal officer	1	Guru Teg Bahadhur Hospital	1 day	covid	quaterly	1	monthly
47	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
48	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
49	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
50	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
51	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
52	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
53	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
54	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
55	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
56	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
57	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
58	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue , red , pink , brown	1	2020	COVID -19	1	nodal officer	1	Civil Hospital	1 day	covid	monthly	1	monthly
59	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire safety	twice yearly	1	yearly
60	99	99	1	prioritizing patient	1,2,3,45	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire safety	yearly	2	99
61	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire safety	yearly	1	yearly
62	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	yearly	1	yearly
63	99	99	2	99	99	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	yearly	1	yearly
64	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	twice yearly	2	99
65	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	yearly	1	yearly
66	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	yearly	2	99
67	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire	yearly	2	99
68	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ch	1 day	disaster management	annualy	1	annualy
69	99	99	1	prioritizing patient	1,2,3,4	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	yearly	1	yearly
70	99	99	1	colour coding	1,2,3,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire	yearly	1	yearly
71	99	99	1	colour coding	1,2,3,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire	yearly	1	yearly
72	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	yearly	1	twice yearly
73	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/disaster mnangement	yearly	1	yearly
74	99	99	1	colour coding	1,2,3.4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	yearly	1	yearly
75	99	99	1	prioritizing patient	1,2,3.4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc	1 day	fire	6 monthly	1	6 monthly
76	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	6 monthly	1	6 monthly

S.NO	TDQ5B	TDQ6	TDQ7	CSQ1	CSQ2	CSQ3	CSQ4	CSQ5	SPQ1	SPQ2	SPQ3	SPQ4	SCQ1	SCQ2	SCQ3	SCQ4A	SCQ4B	SCQ4C	SCQ4D	SCQ4E	SCQ5	SCQ5A	SCQ5B	SCQ5C
42	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
43	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
44	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
45	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
46	3 months back	2	training to all paramedical staff	1	1	1	1	100	1	1	1	1,2,3,5,6,7,8	1	1,2	double duties	1	1	1	1	1	1	2	2 to 3	100
47	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
48	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
49	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
50	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
51	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
52	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
53	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
54	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
55	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
56	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
57	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
58	last year	1	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	1	1	1	1	1	1 to 2	1
59	last month	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
60	99	2	base level training 1	1	1	1	1	100	1	1	1	1,2,3,4,5.6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
61	3 months back	2	training other than fire safety	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	extra shift	1	1	2	2	1	1	1	call on 108	100
62	2year back	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
63	1 year back	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	off duty staff	1	1	2	2	1	1	1	call on 108	100
64	99	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
65	2019	2	training to all paramedical staff	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	extra shift	1	1	2	1	1	1	1	call on 108	100
66	99	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	extra shift	1	1	2	2	1	1	1	call on 108	100
67	99	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	on call staff	1	1	2	2	1	1	1	call on 108	100
68	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	on call staff	1	1	1	2	1	1	1	call on 108	100
69	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	off duty staff	1	1	1	2	1	1	1	call on 108	100
70	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	off duty staff	1	1	1	2	1	1	1	call on 108	100
71	4 months ago	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	off duty staff	1	1	1	2	1	1	1	call on 108	100
72	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	extra shift	1	1	1	2	1	1	1	call on 108	100
73	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	on call staff	1	1	1	2	1	1	1	call on 108	100
74	4 months ago	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	on call staff	1	1	1	2	1	1	1	call on 108	100
75	6 months ago	2	training regarding internal disaster is lacking	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
76	last year	2	training sshould be offline	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position	Total Years of experience	EPQ1	EPQ1A	EPQ1B	EPQ1C	EPQ2	EPQ3	EPQ4	EPQ5	EPQ5A	EPQ5B	EPQ6	EPQ7	ECSQ1	ECSQ2	ECSQ2A	ECSQ3
77	11/18/2021	CHC Sahnewal	Aarti sharma	36	1	3	3	5	8	2	99	99	99	2	1	1	1	100	99	1	100	1	1	3	2
78	11/18/2021	CHC Sahnewal	charanjeet kaur	53	1	4	5	19	35	2	99	99	99	2	1	1	1	100	99	2	2	1	1	3	2
79	11/18/2021	CHC Sahnewal	gurjit sandhu	32	2	4	5	8	12	2	99	999	99	2	1	1	2	99	100	2	2	1	1	3	2
80	11/18/2021	CHC Sahnewal	rajesh verma	38	2	5	6	0.8	14	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
81	11/18/2021	CHC Sahnewal	Kulwant rai	37	2	5	6	1 month	10	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
82	11/25/2021	CHC Sidhwanbet	Dr Mandeep sidhu	48	1	1	1	3	24	2	99	999	99	2	1	1	2	99	100	2	3	1	1	3	2
83	11/25/2021	CHC Sidhwanbet	Dr karandeep arora	32	2	2	2	6.5	6.5	2	99	99	99	2	1	1	2	99	1	2	3	1	1	3	2
84	11/25/2021	CHC Sidhwanbet	Nachhatr kaur	56	1	3	3	24	35	2	99	99	99	2	1	1	2	99	1	2	100	1	1	3	2
85	11/25/2021	CHC Sidhwanbet	harpal kaur	45	1	3	3	20	25	2	99	99	99	2	1	1	2	99	100	2	100	1	1	3	2
86	11/25/2021	CHC Sidhwanbet	ramesh kumar	40	2	4	5	6	16	2	99	99	99	2	1	1	2	99	100	2	100	1	1	3	2
87	11/25/2021	CHC Sidhwanbet	gurwinder kaur	54	1	5	6	2	34	2	99	999	99	2	1	1	2	99	100	2	100	1	1	3	2
88	11/25/2021	CHC Sidhwanbet	amit kapoor	32	2	5	6	1 month	7	2	99	99	99	2	1	1	2	99	100	2	2	1	1	3	2
89	2/23/2022	FORTIS ludhiana	Dr. Shally	45	1	1	1	8	15	1	1	1	1	1	1	2	1	1	99	1	1	1	1	4	1
90	2/11/2022	FORTIS ludhiana	Dr Navdeep	35	2	2	2	2	2	1	1	1	1	1	1	2	1	1	99	1	1	1	1	4	1
91	2/11/2022	FORTIS ludhiana	Samuel	35	2	3	3	0.3	9	1	1	1	1	1	1	2	1	1	99	1	1	1	1	4	1
92	2/23/2022	FORTIS ludhiana	manpreet kaur	34	1	3	3	0.75	15	1	1	1	1	1	1	2	1	1	99	1	1	1	1	4	1
93	2/11/2022	FORTIS ludhiana	Jennifer	31	1	3	3	5	10	1	1	1	1	1	1	2	1	1	99	1	1	1	1	4	1
94	2/23/2022	FORTIS ludhiana	Shushim sharma	36	2	4	5	8	15	1	1	1	1	1	1	2	1	100	99	1	100	1	1	4	1
95	2/11/2022	FORTIS ludhiana	vishali	22	1	4	5	0.16	0.16	1	1	1	1	1	1	2	1	100	99	1	100	1	1	4	1
96	2/23/2022	FORTIS ludhiana	sunil kumar	40	2	4	5	8	18	1	1	1	1	1	1	2	1	100	99	1	1	1	1	4	1
97	2/23/2022	FORTIS ludhiana	kusum goyal	38	1	5	6	5	12	1	1	1	1	1	1	2	1	100	99	1	5	1	1	4	1
98	2/23/2022	FORTIS ludhiana	amandeep singh	32	2	5	6	3	6.5	1	1	1	1	1	1	2	1	100	99	1	100	1	1	4	1
99	2/23/2022	FORTIS ludhiana	Nitin kumar	26	2	5	6	0.58	1.5	1	1	1	1	1	1	2	1	100	99	1	1	1	1	4	1
100	2/2/2022	SDH Raikot	DR Alka mittal	48	1	1	1	2	27	2	99	99	99	2	1	1	2	99	3	2	2	1	1	3	2
101	2/2/2022	SDH Raikot	Dr Harkamal kaur	38	1	2	1	2	10	2	99	99	99	2	1	1	2	99	100	2	100	1	1	1	2
102	2/2/2022	SDH Raikot	Dr Navdeep	25	1	2	2	1	1	2	99	99	99	2	1	1	2	99	100	2	5	1	1	1	2
103	2/2/2022	SDH Raikot	Shaminderpal kaur	36	1	3	3	6	11	2	99	99	99	2	1	1	2	99	99	2	5	1	1	3	2
104	2/2/2022	SDH Raikot	Beant kaur	30	1	3	3	4.5	6	2	99	99	99	2	1	1	1	100	99	1	100	1	1	3	2
105	2/2/2022	SDH Raikot	hardeep kaur	39	1	3	3	7	16	2	99	99	99	2	1	1	2	99	100	2	100	1	1	3	2
106	2/2/2022	SDH Raikot	Vir dalwinder singh	36	2	4	5	7	8	2	99	99	99	2	1	1	2	99	100	2	100	1	1	1	2
107	2/2/2022	SDH Raikot	jaswinder singh	57	2	5	6	17	39	2	99	99	99	2	1	1	2	99	100	2	100	1	1	3	2

S.NO	ECSQ3A	ECSQ3B	TEQ1	TEQ1A	TEQ2	TEQ3	TEQ4	TEQ4A	TDQ1	TDQ1A	TDQ1B	TDQ2	TDQ2A	TDQ3	TDQ3A	TDQ3B	TDQ3C	TDQ4	TDQ5	TDQ5A
77	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	6 monthly	1	6 monthly
78	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	6 monthly	1	6 monthly
79	99	99	1	colour coding	1,2,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	chc/online	1 day	fire/covid	yearly	1	6 monthly
80	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	6 monthly	1	6 monthly
81	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	CH/Online	1 day	fire/covid	6 monthly	1	6 monthly
82	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,red	1	2020	COVID -19	1	nodal officer	1	ch	1 day	covid	yearly	1	yearly
83	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue,red	1	2020	COVID -19	1	nodal officer	1	ch	1 day	covid	yearly	1	yearly
84	99	99	1	colour coding	1,2	1	2	99	1	2020	COVID -19	1	nodal officer	1	ch/chc	2 days	covid/ fire	yearly	1	yearly
85	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,red	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	yearly	1	yearly
86	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	yearly	1	yearly
87	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,red	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	yearly	1	yearly
88	99	99	2	99	99	2	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	2 days	covid	twice yearly	2	99
89	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	2 days	disaster management	quaterly	1	quaterly
90	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	HOD Emergency Departmentt	1	emergency	1 day	fire	quaterly	1	quaterly
91	1	1	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	HOD Emergency Departmentt	1	emergency	1 day	fire	quaterly	1	quaterly
92	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	HOD Emergency Departmentt	1	emergency	1 day	fire	quaterly	1	quaterly
93	1	1	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	HOD Emergency Departmentt	1	emergency	1 day	fire	quaterly	1	quaterly
94	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	1 day	fire	monthly	1	monthly
95	1	1	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2021	COVID -19	1	nodal officer	1	emergency	1 day	DM	quaterly	2	99
96	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	1 day	fire	quaterly	1	monthly
97	1	1	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	1 day	fire	quaterly	1	quaterly
98	1	1	2	99	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	1 day	fire	monthly	1	monthly
99	1	1	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	zonal director	1	emergency	1 day	fire	monthly	2	99
100	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	CH	2 days	fire	6 monthly	1	6 monthly
101	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	6 monthly	1	6monthly
102	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	ONLINE	1 day	covid	6 monthly	1	6 monthly
103	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	smo	1	SDH	1 day	fire	6 monthly	1	6 monthly
104	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	SMO	1	sdh	1 day	fire	6 monthly	1	6 monthly
105	99	99	1	prioritizing patient	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	CH/SDH	2 to 3 days	covid/ fire	6 monthly	1	6 monthly
106	99	99	1		1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	SDH	1 day	fire	6 monthly	1	6 monthly
107	99	99	1	prioritizing patient	1,2,3,4	1	2	99	1	2020	COVID -19	1	nodal officer	1	CH/SDH	2 to 3 days	covid/ fire	6 monthly	1	6monthly

S.NO	TDQ5B	TDQ6	TDQ7	CSQ1	CSQ2	CSQ3	CSQ4	CSQ5	SPQ1	SPQ2	SPQ3	SPQ4	SCQ1	SCQ2	SCQ3	SCQ4A	SCQ4B	SCQ4C	SCQ4D	SCQ4E	SCQ5	SCQ5A	SCQ5B	SCQ5C
77	last year	2	training sshould be offline	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	1,3,4	off duty staff	1	1	2	2	1	1	1	call on 108	100
78	last year	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
79	last year	2	may I help you counter should be there	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
80	last year	2	training other than fire safety	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duties	1	1	2	2	1	1	1	call on 108	100
81	last year	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	extra shift	1	1	2	2	1	1	1	call on 108	100
82	2 years back	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3	on call staff	1	1	2	2	1	1	1	call on 108	1
83	2 years back	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,3	off duty staff	1	1	2	2	1	1	1	call on 108	1
84	2 years back	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,3,4	on call staff	1	1	2	2	1	1	1	call on 108	1
85	2 years back	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1	on call staff	1	1	2	2	1	1	1	call on 108	1
86	2 years back	2	100	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	on call staff	1	1	2	2	1	1	1	call on 108	1
87	2 years back	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	on call staff	1	1	2	2	1	1	1	call on 108	1
88	99	2	100	1	2	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	on call staff	1	1	2	2	1	1	1	call on 108	1
89	last year	1	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7.8,9	1	1,2,4	double duties	1	1	1	1	1	1	2	4	1
90	last year	1	monthly trainings	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7.8,9	1	1,2,4	double duties, ward staff	1	1	1	1	1	1	2	2	1
91	last year	1	monthly trainings	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,4	on call staff	1	1	1	1	1	1	2	2	1
92	last year	1	training should be given at joining	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1	double duties	1	1	1	1	1	1	2	2	1
93	last year	1	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1	double duties	1	1	1	1	1	1	2	2	1
94	last year	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9,10	1	1,2,3	overtime	1	1	1	1	1	1	2	4	1
95	99	2	training should be given at joining	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9,10	1	1,2,3,4	overtime	1	1	1	1	1	1	2	4	1
96	last year	2	evacuation drill should also be done	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9,10	1	1,2,3	double duty	1	1	1	1	1	1	2	4	1
97	last year	1	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	double duty	1	1	1	1	1	1	2	4	1
98	3 months back	1	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	1	1	1	1	2	4	1
99	99	1	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	1	1	1	1	2	4	1
100	last month	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	2	1	1	1	1	2	1
101	last month	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	1	1	1	1	1	2	100
102	last month	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	double duty	1	1	1	1	1	1	1	2	100
103	last month	2	more frequent	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	1	1	1	1	1	2	1
104	last monh	2	100	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	1	1	1	1	1	2	1
105	last month	2	100	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	2	1	1	1	1	2	1
106	last month	2	100	1	2	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2,3,4	on call staff	1	1	2	1	1	1	1	2	100
107	last month	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2	on call staff	1	1	1	1	1	1	1	2	1

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position	Total Years of experience	EPQ1	EPQ1A	EPQ1B	EPQ1C	EPQ2	EPQ3	EPQ4	EPQ5	EPQ5A	EPQ5B	EPQ6	EPQ7	ECSQ1	ECSQ2	ECSQ2A	ECSQ3
108	2/2/2022	SDH Raikot	Narinder singh	54	2	5	6	8	32	2	99	99	99	2	1	1	1	100	99	1	2	1	1	3	2
109	5/26/2022	DMC&H	Dr Sandeep sharma	58	2	1	1	28	36	1	1	1	1	1	1	2	1	1	99	1	8	1	1	3	1
110	5/24/2022	DMC&H	Dr Ashwani Chaudhary	57	2	1	1	23	26	1	1	1	1	1	1	2	1	1	99	1	8	1	1	3	1
111	4/10/2022	DMC&H	Dr Pawan	32	2	2	1	1.5	1.5	1	1	1	1	1	2	2	1	100	99	1	5	1	1	3	2
112	4/10/2022	DMC&H	Dr Manuja	45	1	2	1	1	17	1	1	1	1	1	2	2	1	1	99	1	5	1	1	3	2
113	4/10/2022	DMC&H	Hardeep kaur	37	1	3	3	13	13	1	1	1	1	1	2	2	1	1	99	1	5	1	1	3	2
114	4/23/2022	DMC&H	Ranjit kaur	52	1	3	3	23	25	1	1	1	1	1	2	2	1	100	99	1	100	1	1	3	2
115	4/10/2022	DMC&H	Dalveer kaur	36	1	3	3	14	14	1	1	1	1	1	2	2	1	100	99	2	100	1	1	1	2
116	3/15/2022	DMC&H	Harjit singh	48	2	4	5	14	18	1	1	1	1	1	2	2	1	100	99	1	100	1	1	3	2
117	5/2/2022	DMC&H	ritu rani	36	1	4	5	8	12	2	99	99	99	2	2	2	1	100	99	1	1	1	1	3	2
118	5/2/2022	DMC&H	savroop singh	56	2	4	5	39	39	1	1	1	1	1	2	2	1	100	99	2	100	1	1	3	2
119	3/15/2022	DMC&H	gyansham moriya	36	2	4	5	8	11	1	1	1	1	1	2	2	1	100	99	1	100	1	1	3	2
120	4/23/2022	DMC&H	Jyoti kapoor	32	1	5	6	7	9	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
121	4/23/2022	DMC&H	pawan kumar	31	2	5	6	9	9	2	99	99	99	2	1	1	2	99	100	2	3	1	1	3	2
122	4/23/2022	DMC&H	Pritpal kaur	29	1	5	6	7	7	2	99	99	99	2	2	1	2	99	100	2	3	1	1	100	2

S.NO	ECSQ3A	ECSQ3B	TEQ1	TEQ1A	TEQ2	TEQ3	TEQ4	TEQ4A	TDQ1	TDQ1A	TDQ1B	TDQ2	TDQ2A	TDQ3	TDQ3A	TDQ3B	TDQ3C	TDQ4	TDQ5	TDQ5A
108	99	99	1	colour coding	1,2,3,4,5	1	2	99	1	2020	COVID -19	1	nodal officer	1	CH/SDH	2 to 3 days	covid/ fire	6 monthly	1	6 monthly
109	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	2	99	99	99	quaterly	1	quaterly
110	1	1	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	2	99	99	99	quaterly	1	quaterly
111	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	fire	6 monthly	1	6 monthly
112	99	99	1	prioritizing patient	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	online	1 day	fire	6 monthly	1	6 monthly
113	99	99	1	prioritizing patient	1,2,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	2 days	DM	6 monthly	1	6 monthly
114	99	99	1	colour coding	1,2,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	dmc	2 days	DM	6 monthly	1	6 monthly
115	99	99	1	colour coding	1,2	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	DM	6 monthly	1	6 monthly
116	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	dmc	1 day	DM	6 monthly	1	yearly
117	99	99	1	colour coding	1,2,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	dm	6 monthly	1	6 monthly
118	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	fire	quaterly	2	99
119	99	99	2	99	1,2	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	dm	yearly	1	yearly
120	99	99	1	colour coding	1,2,3,4,4	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	dmc	1 day	fire	6 monthly	2	99
121	99	99	1	colour coding	1,2,3,4,5	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	DMC	1 day	fire	6 monthly	2	99
122	99	99	2	99	99	1	1	code blue,orange,pink black , red, RRT	1	2020	COVID -19	1	nodal officer	1	dmc	1 day	fire	6 monthly	2	99

S.NO	TDQ5B	TDQ6	TDQ7	CSQ1	CSQ2	CSQ3	CSQ4	CSQ5	SPQ1	SPQ2	SPQ3	SPQ4	SCQ1	SCQ2	SCQ3	SCQ4A	SCQ4B	SCQ4C	SCQ4D	SCQ4E	SCQ5	SCQ5A	SCQ5B	SCQ5C
108	last month	2	drills should be conducted more	1	1	1	1	100	1	1	1	1,2,3,4,5,7,8	1	1,2	on call staff	1	1	1	1	1	1	1	2	1
109	2 months back	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2	extra shift	1	1	1	1	1	1	2	6	1
110	2 months back	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2	extra shift	1	1	1	1	1	1	2	6	1
111	1 month ago	2	more frequent	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2	double duty	1	1	1	1	1	1	2	6	1
112	6 months ago	2	regular training and drills	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2,3,4	double shifts	1	1	1	1	1	1	2	6	1
113	april,2022	2	regular training and drills	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2	double duty	1	1	1	1	1	1	2	100	1
114	april,2022	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2,3,4	double duty	1	1	1	1	1	1	2	100	1
115	april,2022	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8,9	1	1,2,3,4	extra duties	1	1	1	1	1	1	2	6	1
116	last year	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duty	1	1	1	1	1	1	2	6	1
117	6 months ago	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	double duty	1	1	1	1	1	1	2	100	100
118	99	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2	extra duty	1	1	1	1	1	1	2	6	1
119	last year	2	100	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	1	1,2,3,4	double duty	1	1	1	1	1	1	2	5	1
120	99	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	extra duty	1	1	1	1	1	1	2	100	100
121	99	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	double duty	1	1	1	1	1	1	2	100	100
122	99	2	more drills required	1	1	1	1	100	1	1	1	1,2,3,4,5,6,7,8	2	99	extra duty	1	1	1	1	1	1	2	100	100

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification
1	01-09-2021	PHC Hambran	Dr Manpreet	26	1	2	2
2	15-12-2021	phc mullanpur	Dr damandeep kaur	46	1	2	1
3	15-12-2021	phc mullanpur	Dr chamandeep kaur	25	1	2	2
4	05-02-2022	PHC Mehdoodan	Dr karanveer sing gill	26	2	2	2
5	22-12-2021	PHC Boparai Kalan	Dr amandeep	40	1	2	1
6	06-10-2021	PHC Ladhowal	Dr rupinder gill	50	2	2	1
7	11-10-2021	PHC Ladhowal	Dr Durgeshnandani	38	2	2	1
8	04-02-2022	PHC Ghawaddi	Dr Jagroop kaur	52	1	2	2
9	03-09-2021	PHC Talwandi kalan	Dr Ankita	31	1	2	2
10	14-10-2021	PHC Mansooran	Dr Ranjit	31	1	2	2
11	18-06-2021	GTB	Dr. Harish Sehgal	58	2	1	1
12	25-06-2021	GTB	Dr. Pushpinder singh	58	2	1	1
13	25-06-2021	GTB	Dr Neeraj	48	2	1	1
14	25-06-2021	GTB	Dr Sarleen kaur	28	1	2	2
15	18-06-2021	GTB	Dr Priyanka	30	1	2	2
16	26-06-2021	Civil Hospital	Dr Amarjeet kaur	52	1	1	1
17	26-06-2021	Civil Hospital	Dr harprret singh	34	2	2	2
18	26-06-2021	Civil Hospital	DR Yashi gupta	24	1	2	2
19	16-06-2021	Civil Hospital	Dr Gurjinder kaur	31	1	2	2
20	16-10-2021	CHC Pakhowal	Dr sandeep kaur	57	1	1	1
21	27-10-2021	CHC Pakhowal	Dr Namrita	34	1	2	1
22	16-10-2021	CHC Pakhowal	Dr aman goyal 25	25	2	2	2
23	11-11-2021	CHC Dehlon	Dr Savita	50	1	1	1
24	11-11-2021	CHC Dehlon	Dr jasneev	53	1	2	2
25	18-11-2021	CHC Sahnewal	Dr Punam Goyal	56	1	1	1
26	25-11-2021	CHC Sidhwanbet	Dr Mandeep sidhu	48	1	1	1
27	25-11-2021	CHC Sidhwanbet	Dr karandeep arora	32	2	2	2
28	23-02-2022	FORTIS ludhiana	Dr. Shally	45	1	1	1
29	11-02-2022	FORTIS ludhiana	Dr Navdeep	35	2	2	2
30	02-02-2022	SDH Raikot	DR Alka mittal	48	1	1	1
31	02-02-2022	SDH Raikot	Dr Harkamal kaur	38	1	2	1
32	02-02-2022	SDH Raikot	Dr Navdeep	25	1	2	2
33	26-05-2022	DMC&H	Dr Sandeep sharma	58	2	1	1
34	24-05-2022	DMC&H	Dr Ashwani Chaudhary	57	2	1	1
35	10-04-2022	DMC&H	Dr Pawan	32	2	2	1
36	10-04-2022	DMC&H	Dr Manuja	45	1	2	1

S.NO	Years of working at current position	Total Years of experience	M.O Q1	M.O Q2	M.O Q3	M.O Q4	M.O Q5	M.O Q6	M.O Q7
1	1	1.5	99	99	99	2	2	2	2
2	11	12	99	99	99	2	2	2	2
3	0.5	1	99	99	99	2	2	2	2
4	1	1	99	99	99	2	2	2	2
5	5	10	99	99	99	2	2	2	2
6	15	21	2	1	EVERY YEAR	1	2	2	2
7	10	16	2	1	EVERY YEAR	1	2	2	2
8	12	13	99	99	99	2	2	2	2
9	2.5	6	99	99	99	2	2	2	2
10	2.5	6	99	99	99	2	2	2	2
11	20	35	1	1	last year	1	1	2	2
12	25	30	1	1	last year	1	1	2	2
13	15	20	1	1	last year	1	1	2	2
14	0.9	0.9	99	99	99	1	1	2	2
15	0.04	5	99	99	99	1	1	2	2
16	1	25	99	99	99	1	1	2	2
17	2	8.5	99	99	99	1	1	2	2
18	0.5	0.5	99	99	99	1	1	2	2
19	0.25	4	99	99	99	1	1	2	2
20	2	32	99	99	99	1	2	2	2
21	0.16	8	99	99	99	1	2	2	2
22	0.8	1	99	99	99	1	2	2	2
23	1	25	99	99	99	1	1	2	2
24	15	28	99	99	99	1	1	2	2
25	3	28	99	99	99	1	1	2	2
26	3	24	99	99	99	1	2	2	2
27	6.5	6.5	99	99	99	1	2	2	2
28	8	15	1	1	Nov-21	1	1	1	2
29	2	2	1	1	100	1	1	1	2
30	2	27	99	99	99	1	1	2	2
31	2	10	99	99	99	1	1	2	2
32	1	1	99	99	99	1	1	2	2
33	28	36	1	1	march ,2022	1	1	1	2
34	23	26	1	1	march ,2022	1	1	1	2
35	1.5	1.5	1	1	100	1	1	1	2
36	1	17	1	1	100	1	1	1	2

S.NO	M.O Q7A	M.O Q8	M.O Q9	M.O Q10	M.O Q11	M.O Q12	M.O Q12A	M.O Q13	M.O Q13A
1	99	1	1	1	1	1	SMO	1	Private pharmacy
2	99	1	1	1	1	1	CS Office	1	Private pharmacy
3	99	1	1	1	1	1	CHC	1	Private pharmacy
4	99	1	1	1	1	2	99	1	Private pharmacy
5	99	1	1	1	1	2	99	1	Private pharmacy
6	99	1	1	1	1	1	CS Office	2	99
7	99	1	1	1	1	1	CS Office	2	99
8	99	1	1	1	2	1	chc	1	Private pharmacy
9	99	1	1	1	1	1	chc	1	chc
10	99	1	1	1	1	1	CHC	1	Private pharmacy
11	99	1	1	1	1	1	idsp	1	Private pharmacy
12	99	1	1	1	1	1	idsp	1	Private pharmacy
13	99	1	1	1	1	1	idsp	1	Private pharmacy
14	99	1	1	1	1	1	idsp	1	Private pharmacy
15	99	1	1	1	1	1	idsp	1	Private pharmacy
16	99	1	1	1	1	1	idsp		Private pharmacy
17	99	1	1	1	1	1	idsp	1	Private pharmacy
18	99	1	1	1	1	1	idsp	1	Private pharmacy
19	99	1	1	1	1	1	idsp	1	Private pharmacy
20	99	1	1	1	1	1	CS Office	1	Private pharmacy
21	99	1	1	1	1	1	smo	1	Private pharmacy
22	99	1	1	1	1	1	smo	1	Private pharmacy
23	99	1	1	1	1	1	CH	1	Private pharmacy
24	99	1	1	1	1	1	idsp	1	Private pharmacy
25	99	1	1	1	1	1	CS Office	1	Private pharmacy
26	99	1	1	1	1	1	CS Office	1	Private pharmacy
27	99	1	1	1	1	1	CS Office	1	Private pharmacy
28	99	1	1	1	1	1	CS Office	1	Private pharmacy
29	99	1	1	1	1	1	CS Office	1	Private pharmacy
30	99	1	1	1	1	1	CS Office	1	Private pharmacy
31	99	1	1	1	1	1	CS Office	1	Private pharmacy
32	99	1	1	1	1	1	CS Office	1	Private pharmacy
33	99	1	1	1	1	1	MS	1	Outside pharmacy
34	99	1	1	1	1	1	MS	1	Outside pharmacy
35	99	1	1	1	1	1	MS	1	Outside pharmacy
36	99	1	1	1	1	1	ms	1	Outside pharmacy

S.NO	M.O Q14	M.O Q 15	M.O Q16	M.O Q17	M.O Q18	M.0 Q19	M.O Q20	M.O Q 21A
1	2	2	2	2	Outside area	2	1	4
2	2	2	2	2	Corridor	1	1	5
3	2	2	2	2	Corridor	2	1	5
4	2	2	2	2	100	2	1	2
5	2	2	2	2	100	2	1	14
6	2	2	2	1	COURTYARD	1	1	4
7	2	2	2	1	COURTYARD	1	1	4
8	2	2	2	1	lobby	2	1	2
9	1	2	2	1	Corridor	2	1	8
10	2	2	2	1	COURTYARD	2	1	10
11	1	1	1	1	Corridor	1	1	12
12	1	1	1	1	Corridor	1	1	12
13	1	1	1	1	Corridor	1	1	12
14	100	100	100	1	Corridor	2	1	12
15	100	100	100	1	Corridor	2	1	12
16	2	2	2	1	Corridor	1	1	12
17	2	2	2	1	Corridor	1	1	12
18	2	2	2	1	Corridor	1	1	12
19	2	2	2	1	Corridor	1	1	12
20	2	2	2	1	Corridor	2	1	50
21	100	100	100	1	Corridor	1	1	3
22	100	100	100	1	Corridor	2	1	25
23	1	100	1	1	1st floor	2	1	30
24	100	100	100	1	1st floor	2	1	30
25	2	100	100	1	COURTYARD	2	1	6
26	2	1	100	1	Corridor	1	1	5
27	2	100	100	1	Corridor	2	1	5
28	2	99	99	1	Corridor	1	1	8
29	100	100	100	1	corridor	1	1	8
30	2	99	99	1	Corridor	2	1	30
31	1	100	100	1	Corridor	1	1	30
32	100	100	100	2	Corridor	1	1	30
33	1	1	1	1	Outside area	1	1	100
34	1	1	1	1	Outside area	1	1	100
35	100	100	100	1	dumra auditorium	1	1	100
36	100	100	100	1	dumra auditorium	1	1	100

S.NO	M.O Q21B	M.O Q22	M.O Q23	M.O Q24	M.O Q25	M.O Q 26	M.O Q27
1	1	2	1	2	2	2	2
2	2	2	1	2	2	2	2
3	2	2	1	2	2	2	2
4	2	2	1	2	2	2	2
5	2	2	1	2	2	2	2
6	0	2	1	2	2	2	2
7	0	2	1	2	2	2	2
8	4	2	1	2	2	2	2
9	2	2	1	2	2	2	2
10	2	2	1	2	2	2	2
11	8	3	1	1	1	2	1
12	8	3	1	1	1	2	1
13	8	3	1	1	1	2	1
14	8	3	1	2	2	2	100
15	8	3	1	2	2	2	100
16	8	3	1	2	2	2	2
17	8	3	1	2	2	2	2
18	8	3	1	2	2	2	2
19	8	3	1	2	2	2	2
20	0	2	1	2	2	2	100
21	3	2	1	2	2	2	100
22	4	2	1	2	2	2	100
23	100	2	1	2	2	2	100
24	100	2	1	2	2	2	100
25	3	2	1	2	2	2	2
26	3	3	1	2	2	2	2
27	3	3	1	2	2	2	2
28	6	1	1	1	1	1	1
29	6	3	1	1	1	1	1
30	20	3	1	2	2	2	2
31	20	1	1	1	2	2	2
32	20	1	1	2	2	2	2
33	100	3	1	1	1	1	1
34	100	3	1	1	1	1	1
35	100	3	1	2	2	2	2
36	100	3	1	2	2	2	2

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position
1	01-09-2021	PHC Hambran	Jaspal kaur	40	1	3	3	5
2	15-12-2021	phc mullanpur	kirandeep kaur	31	1	3	3	3
3	05-02-2022	PHC Mehdoodan	Kamaldeep kaur	40	1	3	3	12
4	22-12-2021	PHC Boparai Kalan	dimple	31	1	3	4	2
5	11-10-2021	PHC Ladhowal	Meenakshi Sonia	35	1	3	3	9
6	04-02-2022	PHC Ghawaddi	veerpal kaur	37	1	3	3	0.25
7	03-09-2021	PHC Talwandi kalan	gurpreet kaur	39	1	3	3	12
8	03-09-2021	PHC Talwandi kalan	Ramandeep kaur	38	1	3	3	12
9	14-10-2021	PHC Mansooran	jasvir kaur	39	1	3	3	9
10	18-06-2021	GTB	Prabhjot kaur	29	1	3	3	8
11	18-06-2021	GTB	jaspreet kaur	23	1	3	3	0.75
12	19-06-2021	GTB	Parminder kaur	25	1	3	3	4
13	19-06-2021	GTB	Gagandeep kaur	24	1	3	3	1
14	16-06-2021	Civil Hospital	Usha	48	1	3	3	19
15	16-06-2021	Civil Hospital	Sandeep kaur	33	1	3	3	7
16	16-06-2021	Civil Hospital	sunil singh	23	2	3	3	0.16
17	16-10-2021	CHC Pakhowal	Pritam kaur	57	1	3	3	30
18	27-10-2021	CHC Pakhowal	Harwinder kaur	36	1	3	3	10
19	15-11-2021	CHC Dehlon	iqbalminder kaur	55	1	3	3	17
20	15-11-2021	CHC Dehlon	Sukhminder kaur	49	1	3	3	8
21	18-11-2021	CHC Sahnewal	Balbir kaur	55	1	3	3	1
22	18-11-2021	CHC Sahnewal	Aarti sharma	36	1	3	3	5
23	25-11-2021	CHC Sidhwanbet	Nachhatr kaur	56	1	3	3	24
24	25-11-2021	CHC Sidhwanbet	harpal kaur	45	1	3	3	20
25	11-02-2022	FORTIS ludhiana	Samuel	35	2	3	3	0.3
26	23-02-2022	FORTIS ludhiana	manpreet kaur	34	1	3	3	0.75
27	11-02-2022	FORTIS ludhiana	Jennifer	31	1	3	3	5
28	02-02-2022	SDH Raikot	Shaminderpal kaur	36	1	3	3	6
29	02-02-2022	SDH Raikot	Beant kaur	30	1	3	3	4.5
30	02-02-2022	SDH Raikot	hardeep kaur	39	1	3	3	7
31	10-04-2022	DMC&H	Hardeep kaur	37	1	3	3	13
32	23-04-2022	DMC&H	Ranjit kaur	52	1	3	3	23
33	10-04-2022	DMC&H	Dalveer kaur	36	1	3	3	14

S.NO	Total Years of experience	NSQ1	NSQ2	NSQ3	NSQ4	NSQ5	NSQ6	NSQ7	NSQ7A	NSQ8	NSQ9	NSQ10
1	16	2	2	2	2	2	2	2	99	1	Outside area	2
2	6	2	2	2	2	2	2	2	99	2	99	2
3	12	99	99	2	2	2	2	2	99	2	99	2
4	6	99	99	2	2	2	2	2	99	1	1	2
5	15	99	99	1	2	2	2	2	99	1	courtyard	2
6	11	99	99	2	2	2	2	2	99	1	courtyard	2
7	15	99	99	2	2	2	2	2	99	2	99	2
8	16	99	99	2	2	2	2	2	99	2	99	2
9	13	99	99	2	2	2	2	2	99	1	courtyard	2
10	8	99	99	2	2	1	2	2	99	1	corridor	3
11	0.75	99	99	2	2	1	2	2	99	1	corridor	3
12	4	99	99	2	2	1	2	2	99	1	corridor	3
13	1	99	99	2	2	1	2	2	99	1	corridor	3
14	25	99	99	1	2	1	2	2	99	1	corridor	3
15	8	99	99	1	2	1	2	2	99	1	corridor	3
16	2	99	99	1	2	1	2	2	99	1	corridor	3
17	31	99	99	1	2	2	2	2	99	1	wards	2
18	12	99	99	1	1	2	2	2	99	1	wards	2
19	30	99	99	1	2	2	2	2	99	1	reception area	2
20	20	99	99	1	2	2	2	2	99	1	reception area	2
21	35	99	99	1	2	1	2	2	99	1	corridor	2
22	8	99	99	2	2	1	2	2	99	1	corridor	2
23	35	99	99	2	2	2	2	2	99	1	corridor	3
24	25	99	99	1	2	2	2	2	99	1	corridor	3
25	9	1	1	1	1	1	1	1	>6 patients	1	corridor	3
26	15	1	1	1	1	1	1	1	>6 patients	1	corridor	3
27	10	1	1	1	1	1	1	1	>6 patients	1	corridor	3
28	11	99	99	99	1	1	2	2	99	2	corridor	1
29	6	99	99	1	2	1	2	2	99	2	corridor	1
30	16	99	99	99	1	1	2	2	99	2	corridor	1
31	13	1	1	1	1	1	1	1	>5 to 7 patients	1	corridor	3
32	25	1	1	1	1	1	1	2	99	1	corridor	3
33	14	1	1	1	1	1	1	1	>5 to 7 patients	1	dumra	3

S.NO	NSQ11
1	increase manpower , more training
2	increase manpower , more training
3	training given to all staff , lack of manpoer, euipments.
4	training given to all staff , lack of manpoer, euipments.
5	training given to all staff , lack of manpoer, euipments.
6	training given to all staff , lack of manpoer, euipments.
7	training given to all staff , lack of manpoer, euipments.
8	training given to all staff , lack of manpoer, euipments.
9	training given to all staff , lack of manpoer, euipments.
10	training given to all staff , lack of manpoer, euipments.
11	training given to all staff , lack of manpoer, euipments.
12	training given to all staff , lack of manpoer, euipments.
13	training given to all staff , lack of manpoer, euipments.
14	training given to all staff , lack of manpoer, euipments.
15	training given to all staff , lack of manpoer, euipments.
16	training given to all staff , lack of manpoer, euipments.
17	refer to ch ldh
18	more equipments . Manpower
19	more equipments . Manpower
20	more equipments . Manpower
21	100
22	more equipments . Manpower
23	offline trainings for DM
24	more trained staff required
25	equipment shortage sometimes.
26	Disaster kits should be in emergency, training more frequent.
27	adequate
28	training should be given at same facility
29	Code should be there , more trained staff
30	training should be given at same facility
31	training to all the staff
32	training to manage internal disaster
33	basic training to class 4 and separate teams for DM

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification	Years of working at current position
1	01-09-2021	PHC Hambran	Hardeep singh	35	2	4	7	1.5
2	15-12-2021	phc mullanpur	lovepreet singh	40	2	4	5	1.5
3	11-10-2021	PHC Ladhowal	William Masish	45	2	4	5	8
4	04-02-2022	PHC Ghawaddi	Harwinder singh	38	2	4	5	2
5	03-09-2021	PHC Talwandi kalan	manjeet singh	39	2	4	5	7
6	14-10-2021	PHC Mansooran	jaspreet kaur	49	1	4	5	1
7	16-06-2021	GTB	Mariama Mathew	53	1	4	5	34
8	18-06-2021	GTB	Sunil kumar	46	2	4	5	2.5
9	16-06-2021	Civil Hospital	Parminder singh	42	2	4	5	7
10	16-06-2021	Civil Hospital	parminde kaur	35	1	4	5	4
11	27-10-2021	CHC Pakhowal	rajwinder kaur	27	1	4	5	2
12	27-10-2021	CHC Pakhowal	mandeep kaur gill	34	1	4	5	3
13	11-11-2021	CHC Dehlon	Pardeep kaur	37	2	4	5	5
14	18-11-2021	CHC Sahnewal	charanjeet kaur	53	1	4	5	19
15	18-11-2021	CHC Sahnewal	gurjit sandhu	32	2	4	5	8
16	25-11-2021	CHC Sidhwanbet	ramesh kumar	40	2	4	5	6
17	23-02-2022	FORTIS ludhiana	Shushim sharma	36	2	4	5	8
18	11-02-2022	FORTIS ludhiana	vishali	22	1	4	5	0.16
19	23-02-2022	FORTIS ludhiana	sunil kumar	40	2	4	5	8
20	02-02-2022	SDH Raikot	Vir dalwinder singh	36	2	4	5	7
21	15-03-2022	DMC&H	Harjit singh	48	2	4	5	14
22	02-05-2022	DMC&H	ritu rani	36	1	4	5	8
23	02-05-2022	DMC&H	savroop singh	56	2	4	5	39
24	15-03-2022	DMC&H	gyansham moriya	36	2	4	5	8

S.NO	Total Years of experience	LTQ1	LTQ2	LTQ2A	LTQ3	LTQ4	LTQ5	LTQ6
1	10	1	1	SMO	1	1	Refer to CHC	Inc manpower , more training and drills
2	17	1	1	SMO	1	1	refer to chc	Inc manpower , more training and drills
3	19	2	1	smo	1	1	double duty	Inc manpower , more training and drills
4	10	1	1	SMO	1	1	refer to chc	Inc manpower , more training and drills
5	20	1	1	mo	1	1	refer to chc	Inc manpower , more training and drills
6	28	1	1	mo	1	1	refer to chc	Inc manpower , more training and drills
7	34	6	1	consultant	1	1	double duty	Inc manpower , more training and drills
8	22	6	1	consultant	1	1	double duty	Inc manpower , more training and drills
9	19	7	1	mo	1	1	contract	100
10	12	7	1	mo	1	1	from field	Inc manpower , more training and drills
11	5	4	1	smo	1	1	double duty	Inc manpower , more training and drills
12	8	4	1	smo	1	1	double duty	Inc manpower , more training and drills
13	6	2	1	SMO	2	1	double duty	Inc manpower , more training and drills
14	35	2	1	SMO	1	1	double duty	Inc manpower , more training and drills
15	12	2	1	idsp	1	1	double duty	Inc manpower , more training and drills
16	16	1	1	smo	1	1	refer	Inc manpower , more training and drills
17	15	11	1	microbiology department	1	1	extra duties	training on joining
18	0.16	11	1	microbiology department	1	1	adequate	training on joining
19	18	11	1	microbiology department	1	1	double duty	training on joining
20	8	1	1	cs office	1	1	double duty	Inc manpower , more training and drills
21	18	20	1	doctor in charge	1	1	double duty	Inc manpower , more training and drills
22	12	13	1	doctor in charge	1	1	double duty	Inc manpower , more training and drills
23	39	17	1	doctor in charge	1	1	double duty	Inc manpower , more training and drills
24	11	23	1	doctor in charge	1	1	double duty	Inc manpower , more training and drills

S.NO	Date	Name of Facility	Name	Age	Gender	Designation	Qualification
1	01-09-2021	PHC Hambran	Ramandeep kaur	50	1	5	6
2	15-12-2021	phc mullanpur	sukhbir kaur	51	1	5	6
3	05-02-2022	PHC Mehdoodan	Inderpal tiwari	56	2	5	6
4	22-12-2021	PHC Boparai Kalan	Hardeep kaur	52	1	5	6
5	11-10-2021	PHC Ladhowal	Gurjit singh	30	2	5	6
6	03-09-2021	PHC Talwandi kalan	Aikan gupta	25	1	5	6
7	14-10-2021	PHC Mansooran	maninder kaur	28	1	5	6
8	19-06-2021	GTB	Avneet singh	23	1	5	6
9	19-06-2021	GTB	amandeep singh	26	1	5	6
10	19-06-2021	GTB	parminder singh	30	1	5	6
11	26-06-2021	Civil Hospital	Arun kumar	56	1	5	6
12	26-06-2021	Civil Hospital	Niranjan singh	52	1	5	6
13	16-06-2021	Civil Hospital	neelam bhagat	52	1	5	6
14	16-10-2021	CHC Pakhowal	jaspreet kaur	29	1	5	6
15	16-10-2021	CHC Pakhowal	Paramjet kaur	54	1	5	6
16	15-11-2021	CHC Dehlon	jimmy kapoor	33	1	5	6
17	11-11-2021	CHC Dehlon	karamjeet singh	54	1	5	6
18	18-11-2021	CHC Sahnewal	rajesh verma	38	1	5	6
19	18-11-2021	CHC Sahnewal	Kulwant rai	37	1	5	6
20	25-11-2021	CHC Sidhwanbet	gurwinder kaur	54	1	5	6
21	25-11-2021	CHC Sidhwanbet	amit kapoor	32	1	5	6
22	23-02-2022	FORTIS ludhiana	kusum goyal	38	1	5	6
23	23-02-2022	FORTIS ludhiana	amandeep singh	32	1	5	6
24	23-02-2022	FORTIS ludhiana	Nitin kumar	26	1	5	6
25	02-02-2022	SDH Raikot	jaswinder singh	57	1	5	6
26	02-02-2022	SDH Raikot	Narinder singh	54	1	5	6
27	23-04-2022	DMC&H	Jyoti kapoor	32	1	5	6
28	23-04-2022	DMC&H	pawan kumar	31	1	5	6
29	23-04-2022	DMC&H	Pritpal kaur	29	1	5	6

S.NO	Years of working at current position	Total Years of experience	PhQ1	PhQ2	PhQ3	PhQ4	PhQ5	PhQ6
1	30	32	2	1	monthly	1	1	Private pharmacy
2	2	12	1	1	daily	1	1	private
3	9	30	1	1	daily	1	1	private
4	32	32	3	1	monthly	1	1	private
5	0.8	4	1	1	monthly	1	1	from chc
6	0.6	0.6	1	1	monthly	1	1	private
7	1.5	4	1	1	weekly	1	1	private
8	1	1	7	1	daily	1	1	private
9	3	3	7	1	daily	1	1	private
10	4	6	7	1	daily	1	1	private
11	18	39	5	1	weekly	1	1	private
12	6	24	5	1	weekly	1	1	private
13	6	25	5	1	weekly	1	1	private
14	0.25	0.75	2	1	3 monthly	1	1	from CH
15	0.3	35	2	1	3 monthly	1	1	from CH
16	0.8	7	2	1	monthly	1	1	private
17	15	33	2	1	monthly	1	1	private
18	0.8	14	3	1	daily	1	1	private
19	1 month	10	3	1	daily	1	1	private
20	2	34	3	1	weekly	1	1	private
21	1 month	7	3	1	weekly	1	1	private
22	5	12	11	1	weekly	1	1	private
23	3	6.5	11	1	weekly	1	1	private
24	0.58	1.5	11	1	weekly	1	1	private
25	17	39	2	1	monthly	1	1	private
26	8	32	2	1	monthly	1	1	private
27	7	9	150	1	twice weekly	1	1	increase indent
28	9	9	130	1	twice weekly	1	1	increase indent
29	7	7	150	1	twice weekly	1	1	increase indent

S.NO	PhQ7	PhQ8	PhQ9
1	sent back to CHC	limit the distribution	more training and drills
2	sent back to chc	FIFO	more training, lack of manpower
3	discarded	arrange from private	more training, lack of manpower
4	discarded	distributed accordingly	more manpower and training.
5	sent back	distribute accordingly	more manpower and training.
6	sent back	FIFO	more manpower and training.
7	sent back	distribute accordingly	more manpower and training.
8	return	100	100
9	return	limit the distribution	more training
10	return	limit the distribution	
11	return	limit the distribution	more training
12	return	limit the distribution	more training
13	return	limit the distribution	more training
14	discarded	limit the distribution	more training
15	discarded	arrange locally	more training
16	return	private	more training
17	return	limit the distribution	more training
18	discarded	limit the distribution	more training
19	discarded	limit the distribution	more training and drills
20	discarded	limit the distribution	more training and drills
21	discarded	limit the distribution	more training and drills
22	discarded	limit the distribution	100
23	discarded	limit the distribution	more training and drills
24	discarded	100	100
25	discarded	arrange locally	more training and drills
26	discarded	arrange locally	more training and drills
27	return	arrange from store	more training and drills
28	return	arrange	more training and drills
29	return	arrange	more training and drills

No. BFUHS/2K21p-III/ 967 Date 22/10/2021

The Principal,
DMC, Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 29.10.2021 has approved the plan of thesis of **Heema Kashyap**, a student of your college for **MD Community Medicine** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis

A study on disaster preparedness among healthcare facilities in ludhiana district.

Supervisor

Dr. Sarit Sharma
Prof.,
Dept. of Community Medicine,
DMCH, Ludhiana.

Co-Supervisor

Dr. Anurag Chaudhary
Prof. & Head,
Dept. of Community Medicine,
DMCH, Ludhiana.

Dr. Vikram Kumar Gupta Assoc. Prof.,
Dept. of Community Medicine,
DMCH, Ludhiana.

The student has to submit the four copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Dr. S P Singh MS(Oph)
Controller of Examinations

Note :

31. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*
32. *The student may submit the thesis as per the schedule already conveyed i.e for May/June examination 30th Nov of the preceding the year of examination and for Nov/Dec examinations 31st May of the year of examination.*

DEPARTMENT OF COMMUNITY MEDICINE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Ref. No.: DMCH/CM/2020/3350

Dated:20.10.2020

ਦਫਤਰ ਸਿਵਲ ਸਰਜਨ ਲੁਧਿ:
ਰਸੀਦ ਸ਼ਾਖਾ
ਰਸੀਦ ਨੰ:- 8343
ਮਿਤੀ:- 20/10/2020
ਸਿਵਲ ਲੁਧਿਆਣਾ

To
Civil Surgeon,
Ludhiana.

Subject:-. Regarding permission to conduct a study for thesis project.

Respected Sir,

I am Dr. Hema kashyap , first year resident in department of Community medicine , DMCH , Ludhiana. I am planning to do a thesis project on the topic 'To study the preparedness of healthcare facilities to deal with public health emergencies'. For this study we are planning to include PHCs, CHCs , District Hospital , Private hospitals and medical colleges in Ludhiana district.

So I request you to permit us for conducting the study in health facilities of Ludhiana district . I shall be very thankful to you.

Yours sincerely,

Dr. Heema Kashyap
Pg Resident
Deptt. of Community Medicine

Dr. Sarit Sharma
Professor& Supervisor
Deptt. of Community Medicine

Dr.Anurag Chaudhary
Professor and Head
Deptt . of Community Medicine

PTO

ਦਫ਼ਤਰ ਸਿਵਲ ਸਰਜਨ ਫ਼ਤਿਆਬਾਦ।

ਨੰ-ਦੀ-ਸ/2020/ 9533-57 ਮਿਤੀ 20/10/2020

ਸ਼ੁਰੂ ਹੁਣ ਵਿਚ ਮੈਡੀਕਲ ਅਫਸਰ ਦੇ ਖਿਲਾ ਹਸਪਤਾਲ/ ਸੈਂਟਰ ਤੈਨਾਤ। ਸੀ ਐਚ ਸੀ ਅਤੇ ਮੈਡੀਕਲ ਸੁਪਰਵਾਈਜ਼ਰ ਪੁਲਿਸ ਹਸਪਤਾਲ। ਮੈਡੀਕਲ ਕਾਰਨ ਸਿਵਲ ਫ਼ਤਿਆਬਾਦ ਨੂੰ ਚੇਤ ਦੇ ਵਿਚਲਾ ਸੰਦਰ ਹੈ ਕਿ ਕੋਰੋਨਾਵਾਇਰਸ ਦਿਨੋਂ ਸਦੀਵੀ ਤ. ਤੇਜ਼ ਰਫ਼ਤਾਰ ਨੂੰ ਆਪਣੇ ਪ੍ਰੋਫੈਸਰਲ ਨਾਲ ਸਦੀਵੀ ਸਟੇਟੀ ਸਟੀਰੀਲਾਈਜ਼ੇਸ਼ਨ (ਚੀਮਨ) ਬਾਰੇ ਜਾਣਕਾਰੀ ਦੇਣ ਦੀ ਮੁਹਿੰਮ ਵਿਚ ਸੰਦਰੀ ਹੈ।

ਸਿਵਲ ਸਰਜਨ,
ਫ਼ਤਿਆਬਾਦ।

20/10/2020

A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT

THESIS PROPOSAL

FOR APPROVAL OF SUBJECT OF THESIS TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

DOCTOR OF MEDICINE

In

COMMUNITY MEDICINE

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

FEBRUARY 2021

Dr. HEEMA KASHYAP

DEPARTMENT OF COMMUNITY MEDICINE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA
LUDHIANA, PUNJAB-141001

ABSTRACT OF PLAN OF THESIS

Title	A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT.
For the degree of	M.D. Community Medicine
Name of the candidate	Dr. Heema Kashyap
Supervisor	Dr. Sarit Sharma, Professor, Department of Community Medicine, DMC & H, Ludhiana
Co-supervisor	Dr. Anurag Chaudhary, Professor & Head, Department of Community Medicine, DMC & H, Ludhiana Dr.Vikram Kumar Gupta, Associate Professor, Department of Community Medicine, DMC & H, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Disasters have been occurring as long as the mankind has existed. Disasters, either natural or man-made, not only affect the health system but also alter the social stability and economic development of a country. The devastating effect of the recent crisis of COVID-19 has established the importance of emergency preparedness and response of hospitals.

Aim of Study: To study the disaster preparedness of healthcare facilities at primary, secondary and tertiary care level.

Materials & methods: It is a cross sectional study which will be conducted in different healthcare facilities in district Ludhiana, Punjab. Healthcare facilities to be studied will include Primary Health Centres (PHCs), Community Health Centres (CHCs), Sub Divisional Hospitals (SDH), District Civil Hospital (CH), private hospitals and medical colleges located in district Ludhiana.

Keywords: Disaster Preparedness, health care facilities.

(Signature) Candidate	(Signature) Co-supervisor	(Signature) Co-supervisor	(Signature) Supervisor	(Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of thesis titled **"A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT"** exist in the Department of Community Medicine at Dayanand Medical College and Hospital, Ludhiana and will be provided to the candidate. We will see that the data being included in the thesis are genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

Dr. Sarit Sharma
Professor
Department of Community Medicine
DMCH, Ludhiana

Co-Supervisor

Dr. Anurag Chaudhary
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Dr. Vikram Kumar Gupta
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DMC & H, Ludhiana

Head of the Department

Dr. Anurag Chaudhary
Professor & Head
Department of Community Medicine
DMCH, Ludhiana

Place:

Date:

APPROVAL PROFORMA
BY
RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Dr. Heema Kashyap
Department	Community Medicine
Topic of Thesis	A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT
Likely date of appearing in PG examination	MAY-JUNE 2023
Date of enrollment	26th July 2020
Name of Head of Department	Dr. Anurag Chaudhary
1) Supervisor **2) Co-Supervisor**	Dr. Sarit Sharma Dr. Anurag Chaudhary Dr. Vikram kumar Gupta
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Mr. R K Sharma (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Ramit Mahajan (Associate Professor, Gastroenterology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Anu Sharma (Professor, Anatomy)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Gurpreet S Wander (Vice Principal & Professor & Head, Cardiology)
	Dr. Gagandeep Singh (Secretary, Ethics Committee Professor & Head, Neurology)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Dr. Heema Kashyap Village Akalgarh PO N.N Bandan, Tehsil & District Pathankot , Punjab-145001
2	NAME OF THE INSTITUTE	Dayanand Medical College & Hospital
3	COURSE OF STUDY AND SUBJECT	Community Medicine
4	DATE OF ADMISSION OF COURSE	July 2020
5	TITLE OF THE TOPIC	A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT.

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Disasters have been occurring as long as the mankind has existed. Hazards being part of our lives, it is difficult to live in a completely risk-free environment. Human race has faced many disasters that have deeply affected them by causing communicable diseases, hunger, poverty and deaths by starvation. There are three major world pandemics of plague recorded in medieval times in 541,1347 and 1894 CE. Among them the bubonic plague or the Black Death pandemic was responsible for deaths of one third of the world's population. As the human race moved forward to civilization and urbanization, it became more vulnerable to disasters.

From the 1918 Spanish flu, the deadliest pandemic in human history infecting 500 million people to the unthinkable 1986 Chernobyl disaster, the world's worst nuclear accident, these disasters have caused huge mortality and have become a constant drain on the health system. India being a high density, resource - stretched and disaster-prone country, is no stranger to such deadly events and has witnessed enough disasters like floods, earthquakes, cyclones and droughts. More than 50% of India's landmass is vulnerable to more than one hazard of high intensity. From 1910 - 2020, India has witnessed 736 recorded disasters leading to 6.5 million deaths. These disasters have affected more than 2.4 billion people and have caused loss of 125 million USD.[1]

WHO defines disaster as "a serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses which exceed the ability of the affected community or society to cope using its own resources".[2]

Disasters, either natural or man-made, not only affect the health system but also alter the social stability and economic development of a country.

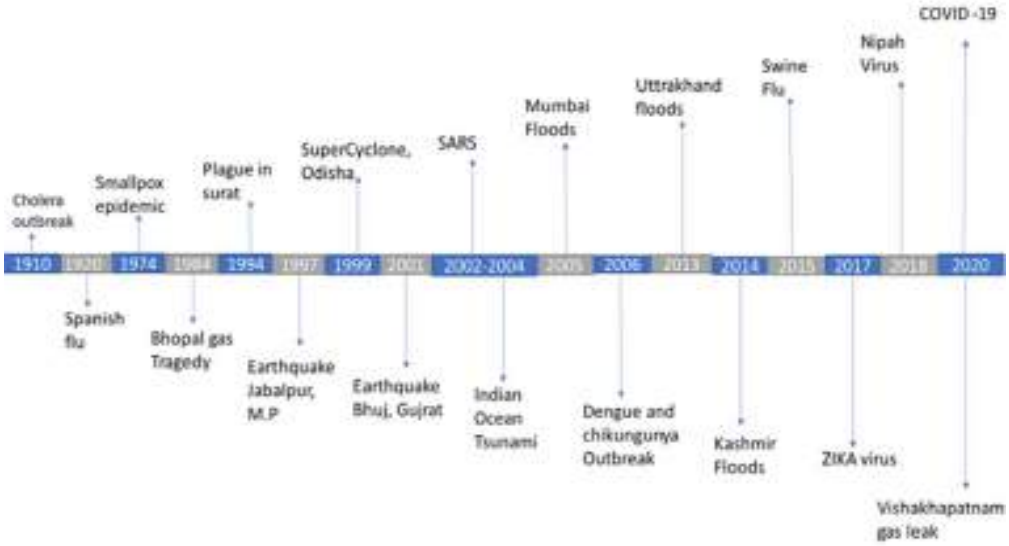

Figure 1 - Timeline of some major public health emergencies in India during 20th century.

All of the above public health emergencies shown in Figure 1 have challenged the preparedness and response capacities of the health system. Currently the whole world is battling with COVID-19 pandemic and even the most developed countries have failed to prevent its spread. The devastating effect of the recent crisis of COVID-19 has established the importance of emergency preparedness and response of hospitals. The United Nation office for the coordination of Humanitarian affairs (UNOCHA) estimated that 168 million people will need humanitarian assistance in year 2020. About 79.5 million have been displaced forcibly and among them 26 million are refugees and 48.7 million are internally displaced people. If the current trend persists, more than 200 million people could be in need of assistance by 2022.[3]

Health systems at all levels have a central role in managing the risks and reducing the consequences of emergencies and disasters. Hospitals play a very crucial role and are frontline in providing necessary health care services to people during and after the incident. To secure a nation's public health, it is essential to be prepared and be able to respond and rapidly recover from the emergency.

Preparedness is defined by Federal emergency management agency (FEMA) as a "Continuous cycle of planning, organizing, training,

equipping, exercising, evaluating and taking corrective action in an effort to ensure effective coordination during incident response".[4]

During any emergency, the primary demand of health services to initial events is followed by a secondary peak in demand for healthcare services after a week or month which only adds up to an already burdened health system. To combat this, health system needs to be resilient which is defined as the ability to resist, absorb, accommodate and recover from the effects of shock in a timely and efficient manner, including restoration of its essential basic structure and function.[5]

Benjamin Franklin very rightly said that "By failing to prepare, you are preparing to fail"[6]. To enhance the efficacy of the national health system to fight against disasters, the disaster management and preparedness plan must be incorporated into primary, secondary and tertiary health care levels. As per guidelines of Government of India as well as United Nations Development Program - Disaster Risk Management (GOI-UNDP DRM) Programme (2002-2008), the hospitals should use a phase plan for three phases: Pre disaster phase, Disaster phase and Post- disaster phase.[7] Another guideline for hospital safety was issued by the National Disaster Management Authority (NDMA) in 2016 which was followed by Draft public health bill issued in 2017 for prevention, control and management of epidemics, bio-terrorism and disasters.

So, it becomes amply clear that disaster preparedness is built upon meticulous planning and continuous training in advance, to effectively respond to any disaster/emergency. Thus, the present study is planned to study the disaster preparedness of healthcare facilities at primary, secondary and tertiary care levels and to assess the knowledge of health care workers regarding disaster preparedness in Ludhiana district.

6.2 REVIEW OF LITERATURE

Public Health

Countries worldwide face a broad and highly diverse range of threats to public health, including natural and technological hazards, infectious disease outbreaks, unsafe food, unsafe water, chemical and radiation contamination, wars, and the health consequences of climate change. For meeting these challenges, countries must strengthen their capacities for health emergency and disaster risk management by incorporating measures for prevention, mitigation, preparedness, response and recovery into their public health system.[8]

Public health as defined by World Health Organization (WHO) is “the art and science of preventing disease, prolonging life and promoting health through the organized efforts of society”.[9] The Public Health Act formed in 1848 in England was the first step on the road to improved public health. It was a milestone in history of public health that ensured to improve the sanitary conditions of towns in England and Wales. In India the first Epidemic Diseases Act was passed in 1897 to tackle the epidemic of bubonic plague. Since then many states formulated their own public health laws, the 1939 Madras Public Health Act being the first of its kind in the country. As the Epidemic Act 1897 was not sufficient to prevent and control the communicable diseases ‘The Disaster Management Act’ in 2005 was established. The Prime Minister of India is chairman of National Disaster Management Authority (NDMA).

Disaster

Centre of Research on Epidemiology of Disaster (CRED) defines a disaster as “a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering”. [10] Disasters can be classified into natural or man-made. Natural disaster includes earthquakes, landslides, volcanic eruptions, floods, tsunamis, pandemics etc. Man-made disasters includes stampedes, fires, industrial accidents, oil spills, terrorist attack, nuclear explosion etc.

Public health emergency is defined by World Health Organization as “an occurrence or imminent threat of an illness or health condition caused by bioterrorism, epidemic or pandemic disease or highly fatal infectious agent or biological toxin that poses a substantial risk of a significant number of human fatalities or incidents or permanent or long-term disability”.[2]

As per World Health Organization/ Pan American Health Organization (PAHO), mass casualty incident is due to an emergency which requires the services of health care professionals to take care of large number of victims. It also requires special and additional emergency service arrangement to manage the additional surge or increase in number of patients.[11]

The Disaster Management Act (DM) 2005 defines Disaster as a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.[12]

Disaster Preparedness

Preparedness, as explained by United Nations Office for Disaster Risk Reduction (UNISDR), consist of the knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery.[13]

The DM Act 2005 define Disaster management as it involves continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for the following [12]

a. Prevention of danger or threat of any disaster

b. Mitigation or reduction of risk of any disaster or its severity or consequences

c. Capacity-building

d. Preparedness to deal with any disaster

e. Prompt response to any threatening disaster situation or disaster

f. Assessing the severity or magnitude of effects of any disaster

g. Evacuation, rescue and relief, and

h. Rehabilitation and reconstruction.

Hospitals and Disaster preparedness

Health systems at all levels have a central role in managing the risks and reducing the consequences of emergencies and disasters. The Pan American Health Organization (PAHO) and the World Health Organization (WHO) have defined a safe hospital as a facility whose services remain accessible and functioning at maximum capacity and within the same infrastructure immediately following a natural disaster. The term 'safe hospital' encompasses all health facilities, regardless of their level of complexity. A hospital is 'safe' when it enjoys the highest level of protection possible, when access routes to the health facility are open and when the water supply and electric power and telecommunications can continue supplying the health facility, thus guaranteeing continuity of operations and the ability to absorb the additional demand for medical care.[14]

The National Disaster Management Authority (NDMA) have developed the guidelines on Hospital Safety in 2016 with the vision that all hospitals in India will be structurally and functionally safer from disasters, such that the risks to human life and infrastructure are minimized.[15]

As per Government of India as well as United Nations Development Program, (2002-2008), hospitals play a critical role in saving lives and providing 24x7 emergency care services.

Various studies have been done worldwide in the past to evaluate the preparedness of health care services in dealing with disasters and public health emergencies.

In 2004, Krajewski and Sztanjnkrycer in their article on “Hospital Disaster preparedness in the United States: New issues, New challenges” concluded that each disaster is unique and each hospital is unique but the key element is universal i.e. hospital preparedness plan.[16]

Tang in 2015 did a study on “Evaluation of hospital preparedness for Public health emergencies in Sichuan (China)” in which total of 47 hospitals above secondary level were included and an online questionnaire was emailed to the hospital’s emergency department director. It was concluded that emergency preparedness plan needed to be improved and that government should increase investment in the construction of infrastructure to sustain the preparedness capacity. In his study, the author proposed a sustainable public health emergency plan framework which had five basic domains: structure, staff, stuff, space and service.[17]

In 2017 a cross sectional study on “Evaluation of flood preparedness in public health facilities in eastern province, Sri Lanka” was conducted by Farley *et al* in which 31 health care facilities of Trincomalee district were included. In their study only 12.9% of health facilities had disaster preparedness plan and 12.9% of hospital staff was trained on disaster management. It was concluded that health system strengthening improves resilience to all hazards but should be improved with disasters in mind.[18]

A study on “Emergency and disaster management training; knowledge and attitude of Yemeni health professionals” was done by Naser and Saleem in 2018. In this cross-sectional study two types of questionnaire, a paper survey and an online survey on google drive, were used and total of 531 health professionals participated in it. In their study they revealed that the overall knowledge of health professionals was insufficient and only 32% had good knowledge regarding emergency and disaster preparedness. They also concluded that emergency and disaster preparedness should be included in the primary medical school curricula and medical education programs of the health facilities.[19]

Dell'Era *et al* in their survey on "Hospital Disaster Preparedness in Switzerland Over a Decade" in 2019, did the assessment of the hospital preparedness by comparing the data with the data of 2006 survey. In their study they revealed that less than third of hospitals had a specific plan for nuclear/ radiological, biological/chemical/burns disasters. It was concluded that even though there was improvement in the preparedness plan but some specific situations were not covered and national guidelines, financial incentives and stimulations were lacking.[20]

Desai conducted a study on "Disaster preparedness at selected hospitals of Navi Mumbai identifying the gap areas and strategizing appropriate intervention measures" in 2018. In this study, 10 hospitals were selected and a total of 140 hospital staffs were included. In the study it was concluded that Disaster plan implementation must be made mandatory for all hospitals and non-compliance should be penalized.[21]

Ambat and Vyas (2020) did a study on "Assessment of preparedness against emerging infectious disease among private hospitals in a district of South India". In this study, 54 private hospitals were selected and 5-6 participants were included from each hospital. In their study, they revealed that there were gaps in the implementation of various plans and protocols and suggested that there is need for preparedness of the hospitals against the upsurge of emerging infectious diseases.[22]

In 2020, Sharma and Sharma did a study on "Hospital preparedness and resilience in public health emergencies at district hospitals and community health centres" in Rajasthan including 80 health officials of community health centers and district hospitals and an online questionnaire was sent to them. The results showed that training and education on disasters like COVID-19 is limited to only 37.9% of health care workers and that the level of emergency preparedness is between low to medium in Community health centers and District hospitals. It was concluded that it is time to assess and upgrade emergency preparedness.[23]

6.3 AIMS AND OBJECTIVES OF THE STUDY

- To study the preparedness regarding disaster management in health care facilities at primary, secondary and tertiary care level in Ludhiana district.
- To assess the knowledge of health care workers regarding disaster preparedness in health care facilities.

7. MATERIALS AND METHODS

The present study is a cross sectional study which will be conducted in different healthcare facilities in district Ludhiana, Punjab. Healthcare facilities to be studied will include Primary Health Centres (PHCs), Community Health Centres (CHCs), Sub Divisional Hospitals (SDH), District Civil Hospital (CH), private hospitals and medical colleges located in district Ludhiana.

The total population of Ludhiana district is 3,498,739, out of which 2,069,708 people reside in urban area.[24] There are total of 16 blocks in the district covered by one district civil hospital, 4 sub divisional hospitals, 11 CHCs and 31 PHCs. Apart from this, there are 2 medical colleges and multiple super specialty private hospitals and nursing homes.

Ethical Issues and Informed consent: The study would be submitted to the Institutional Ethics Committee of Dayanand Medical College and Hospital, Ludhiana for approval. Prior permission from the concerned head of institutes included in the study will be obtained. Health care workers (HCWs) will be included in the study after obtaining written informed consent.

7.1 SOURCE OF DATA

a. A round will be conducted by the investigator at selected health facilities to check the preparedness to deal with disasters and public health emergencies by using a checklist.

b. Health Care Workers (HCWs) including medical superintendent, senior medical officers, emergency medical officers, emergency nursing staff, laboratory technicians and pharmacists from the selected facilities at primary, secondary and tertiary level will be interviewed by using a semi-structured questionnaire.

c. Any health care facility which refuse to participate or will be non-cooperative for the study, will be replaced by the next facility which will be available and cooperative.

7.2 METHOD OF COLLECTION OF DATA

Inclusion Criteria

a. Health care facilities situated within Ludhiana district belonging to primary, secondary and tertiary level where concerned heads are willing to participate in the study.
b. Health care workers who will be willing to participate.
c. Private Hospitals with bed capacity more than 100.

Exclusion Criteria

a. Health care facilities where concerned heads will refuse to participate in the study.
b. Health care workers who will be non-cooperative.
c. Private hospitals with bed capacity less than 100.
d. Dental Colleges & Hospitals in Ludhiana District.

Duration of study

The study will be conducted from 1st March 2021 to 28th February 2022

Sample size: About 25% of available health care facilities in Ludhiana district will be selected by simple random sampling technique as shown in table below so that adequate representation of all health care levels can be done in the study. The minimum number of HCWs to be interviewed is mentioned in the table below and the maximum number will not be more than 25 per health care facility.

Health Facilities in Ludhiana District	Total Number	Selected for the study	Minimum number of HCWs to be interviewed per facility
PHCs	31	8	4
CHCs	11	4	6
SDHs	4	1	8
District hospitals	1	1	8
Medical Colleges	2	1	8
Private Hospitals (with bed capacity more than 100 beds)	8	2	8

Sampling technique

Simple random sampling technique will be used for selection of health care facilities and purposive sampling for selection of participants within the health care facility.

Operational Definitions

(a) Disaster

It is a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering" [10]

(b) Disaster Management

The DM Act 2005 define Disaster management as it involves continuous and integrated process of planning, organizing, coordinating and implementing measures which are necessary or expedient for the following[12]

1) Prevention of danger or threat of any disaster
2) Mitigation or reduction of risk of any disaster or its severity or consequences
3) Capacity-building
4) Preparedness to deal with any disaster
5) Prompt response to any threatening disaster situation or disaster
6) Assessing the severity or magnitude of effects of any disaster
7) Evacuation, rescue and relief, and
8) Rehabilitation and reconstruction.

(c) Public Health Emergency

It is an occurrence or imminent threat of an illness or health condition caused by bioterrorism, epidemic or pandemic disease or highly fatal infectious agent or biological toxin that poses a substantial risk of a significant number of human fatalities or incidents or permanent or long-term disability [2]

(d) Emergency Plan

Emergency plan is a plan that prepares the staff and institutional resources of the health care facility for effective performance in different emergency situations.[7]

(e) Emergency command system

It is a unified command system which avoids the duplication of action by ensuring the response to specific emergencies, prioritizing response checklists and by making job action cards. Job action cards are the sheets which enable the medical staff to carry out their duties effectively by providing instructions to the individual in their respective areas. These job cards are colour coded and have instructions written on it. [7]

(f) Triage

Triage is the process of sorting out injured patients into groups based on the severity of their conditions, so that the most serious cases can be treated first.[15]

(g) Emergency code system

Emergency codes are coded messages usually announced over a public address system to alert the staff and to inform them about various emergency situations in hospitals.

(h) Stockpile

It is a large accumulated stock of goods or materials, especially one held in reserve for use at a time of shortage or other emergency.

(i) Surge capacity

Surge capacity is known as the ability of a health care system to expand beyond its normal capacity to fulfill the increased demand in an emergency situation.[15]

(j) Internal disasters

Disaster situations occurring inside the hospital . Example - fire inside the hospital, collapse of hospital building, release of chemicals or radiation, hostage situations, or bomb threats etc

(k) External Disasters

Disaster situations occurring outside the hospital in which the hospital is expected to assist, such as in terms of response and recovery activities. Examples: hurricanes, tornados, floods, storms, earthquakes, train derailments, plane crashes, power outages, terrorist attacks, riots etc.

Procedure of Data Collection

A prior permission to visit the health facility will be taken from the incharge and a date of visit will be fixed. Multiple visits to one facility may be required to complete the data collection. On the preselected date, the investigator will visit the health care facility to collect data regarding disaster preparedness. A facility round will be conducted at the health facility to check the preparedness to deal with disasters and public health emergencies using the checklist. After completing the round, face to face interview of health care workers as mentioned in 7.1 (b) will be done in the facility using a pre-tested, semi-structured questionnaire to assess their knowledge about disaster preparedness. In-depth interview using the semi-structured questionnaire will be done with medical superintendent/senior medical officers/emergency medical officers, nursing staff, laboratory technician and pharmacist by the investigator and data so collected will be recorded and analysed. Any health care facility which will refuse to participate or will be non-cooperative during the study, will be replaced by the next facility.

Tools for Study:

The proposed Proforma consist of two parts.

PART-1	PART-2
Includes Checklist regarding the disaster preparedness of health care facility.	It contains interview schedule of HCWs to assess their knowledge regarding disaster preparedness in health care facility and also to seek suggestions for improving the preparedness through a semi-structured questionnaire

Description of each part is as below:

PART-1

CHECKLIST

Sr.No.	Component and its content
1.	Emergency preparedness plan • Documented plan • Printed files • Details of plan • Job action cards
2.	Infrastructure • General • Emergency facility • Power and water supply • Ambulance services • Fire safety • Security system
3.	Signage • Emergency entry and exit • Fire exit • Hazard and caution signs • Helpline numbers
4.	Equipment • Emergency and fire safety • Blood transfusion equipment • Laboratory equipment
5.	Manpower (As per IPHS Guidelines)[25] • Administrative staff • Nursing staff • Paramedical staff • Class IV employees

Part 2

Questionnaire

Section	Components and its content
1	Basic Information – name, address of facility, type of facility, designation of the respondent.
2	This section is applicable to all the HCWs and it includes questions regarding: • Emergency Plan • Emergency command system • Triage and emergency code system • Training and drills • Communication and Surveillance • Stockpile • Surge capacity
3	This section of the proforma includes questions regarding disaster preparedness that will be asked only to the Medical Superintendent / Senior Medical Officer / Emergency medical officer/ Medical officer.
4	This section is only applicable to the nursing staff of the health facility
5	This section is applicable only to the laboratory Technician.
6	In this section questions related to the disaster preparedness will be asked to pharmacist.

OUTCOME

We will study the disaster preparedness of health care facilities at primary, secondary and tertiary care level and assess the knowledge of health care workers regarding disaster preparedness.

STATISTICAL ANALYSIS

The data collected will be statistically analyzed. Frequency and percentage will be computed. Mean and Standard Deviation will be calculated. Chi square test will be applied to find the difference between two groups. The analysis will be done by using software SPSS version 20.0. A p value of <0.05 will be considered as statistically significant.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS? IF SO, PLEASE DESCRIBE BRIEFLY.

No.

7.4 HAS ETHICAL CLEARENCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3 ?

Attached here with.

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ANNEXURE 1

PROFORMA

PART 1 - CHECKLIST

Date of visit:

Name & Address of the Health facility:

Name & Designation of respondent:

Type of health care facility: Primary / Secondary / Tertiary

: Government / Private

Number of staff in total:

EMERGENCY PREPAREDNESS PLAN	YES/NO/NA/REMARKS
1. Does health facility have an emergency plan?	
2. Is this plan documented in writing?	
3. Is the plan accessible to all staff?	
4. Does the plan include arrangement for rapid transfer of emergency department patient to in-patient?	
5. Does the plan include arrangement to cancel non-emergent services?	
6. Has this health facility given printed charts and copy of all relevant guidelines regarding public health emergency management to the medical staff?	
7. Has the plan been evaluated and updated in last 5 years?	
8. Does the health facility have Incident command system?	
9. Are colour coded job action cards present?	
10. Does the health facility have public health emergencies report or register system?	
11. Does the health facility have emergency warning system?	
12. Does the health facility have a system to communicate with	

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other health facilities/government office/media?	
13. Does this health facility have any notification system to notify on-duty and off-duty staff about emergency status?	
14. Does the health facility conduct/participate in epidemiological surveillance?	
15. Have the health facility conducted training regarding disaster management/ public health emergency in last 5 years?	
16. Have the health facility conducted drills for preparedness of disaster management/ public health emergency?	
17. Does the health facility have protocol for transportation of suspected samples?	
18. Are the disaster supplies labelled as 'FOR DISASTER USE ONLY' and kept separately?	
19. Does the health facility have proper protocol for transferring patients to higher facility?	
20. Does the health facility have following contact numbers a. All staff members b. Nearest police station c. Civic authorities d. District medical authorities e. Other health facilities f. Media g. NGOs h. Volunteer	

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INFRASTRUCTURE	YES/NO/NA/REMARKS
GENERAL	
1. OPD rooms	
2. Emergency room	
3. OT room	
4. Xray room	
5. Labour room	
6. Laboratory	
7. Pharmacy	
8. Blood storage unit	
9. Biomedical waste management system	
10. Storage area for sterile supplies	
11. Storage area for emergency supplies	
12. Nursing station	
13. Mortuary	
14. Telephone service 24*7 available	
15. Residential area for staff	
16. Oxygen supply (piped/cylinder)	
EMERGENCY FACILITY	
17. Proper entry to emergency area	
18. No. of Beds in emergency	
19. Triage area	
20. Isolation room/ beds	
21. Patient waiting room	
21. Separate area of entry in emergency for infected/ contaminated patients	
22. Extra beds in case of disaster	
23. Minor OT/ sterile dressing room	
24. Exit door under direct access without lock and key	
25. Location/Area to accommodate patient during mass	

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casualty	
26. Temporary morgue facility in case of mass casualty	
POWER AND WATER SUPPLY	
27. Electricity for 24*7 available	
28. Emergency lighting/portable light	
29. Generator back up	
30. Water supply for 24*7 available	
31. Reserve emergency water tank	
AMBULANCE SERVICES	
32. No. of ambulance available	
33. Stretcher and basic life support fitting in ambulance	
34. Round the clock ambulance service available	
FIRE SAFETY	
35. Fire alarm system	
36. Ramp	
37. Safety stair case	
SECURITY SYSTEM	
38. Total number of guards posted	
39. Security room	
40. CCTV	

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SIGNAGE	YES/NO/NA/REMARKS
1. On the way signage of health facility and location on all approach roads	
2. Emergency entry signage illuminated in local language	
3. Emergency exit signage illuminated and in local language	
4. Safety, hazard and caution signs displayed at relevant places.	
5. Fluorescent fire exit signage	
6. State/District helpline number displayed in local language	

EQUIPMENT	YES/NO/NA/REMARKS
EMERGENCY AND FIRE SAFETY	
1. Triage tags	
2. Crash carts and trolley	
3. Personal protective equipment	
4. ECG machine	
5. Standard surgical kits	
6. Equipment for anaesthesia	
7. First Aid kits	
8. Public Address System	
9. Fire extinguisher	
10. Sand buckets	
BLOOD TRANSFUSION EQUIPMENT	
11. Blood bank refrigerator	
12. Blood storage unit	
13. Deep freezers	
14. Insulated carrier boxes	
15. Microscope and centrifuge	
LABORATORY EQUIPMENT	
16. Binocular microscope	
17. Ice box	
18. Refrigerator	
19. Sample transportation box	
20. Sterile leak proof container	

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MANPOWER*	Required	Available	NA
1. Block medical officer /medical superintendent			
2. Public Health specialist			
3. Public health Nurse			
4. General surgeon			
5. Physician			
6. Obstetrician Gynaecologist			
7. Paediatrician			
8. Anaesthetist			
9. Dental surgeon			
10. General duty / Emergency Medical Officer			
11. Medical Officer-AYUSH			
12. Staff Nurse			
13. Pharmacist			
14. Pharmacist AYUSH			
15. Lab technician			
16. Radiographer			
17. OT technician			
18. Ophthalmic Assistant			
19. Dental assistant			
20. Cold chain & vaccine logistic Assistant			
21. Community based rehabilitation worker			
22. Counsellor			
23. Registration Clerk			
24. Data entry operator			
25. Account assistant			
26. Administrative assistant			
27. Dresser			
28. Ward boys			
29. Driver			

*As per revised Indian Public Health Standards (IPHS) Guidelines for PHCs, CHCs, District Hospital.

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ANNEXURE -2

PROFORMA

PART -2

SECTION-1 Basic Information

1. Date of visit:
2. Name of the health care facility –
3. Address:
4. Type of facility: PHC /CHC /Sub Divisional Hospital /District hospital / Medical College / Private hospital
5. Name & designation of the respondent:

   Qualification:

   Age: Sex:
6. How many years have you worked in your current position at this facility?
7. Total years of experience:

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SECTION – 2 (GENERAL)

EMERGENCY PLAN	YES/NO/REMARKS
1. Does this health facility have a disaster preparedness plan? If yes, a. Is the plan accessible to all medical staff? b. Does plan include planning to manage 25% increase in patients in all units? c. Does this plan include arrangements to cancel non-emergent services?	
2. Has the health facility given pre-printed charts /copy of all relevant guidelines regarding disaster management to all the staff members?	
3. Are the state/district helpline numbers prominently displayed at your health care facility?	
4. Do you think your health facility needs a Disaster preparedness plan?	
5. Do you think your health facility is adequately prepared to manage any type of disaster or emergency? a. If yes , why ? b. If no , why ?	
6. Do you think your health facility was able to effectively manage last disaster/ public health emergency faced?	

7. Any suggestions to improve the disaster management capacity and protocol in your health facility?

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EMERGENCY COMMAND SYSTEM	YES/NO/REMARKS
1. Does this health facility have a dedicated emergency department?	
2. Is there any command in charge in case of disasters and emergencies? a. If yes, Who is the person in charge ?	
3. Does the command officer develop standard job instructions (job action cards) that briefly list instructions for the key individuals in the respective areas to enable them to carry out their duties effectively? a. Are these job action cards colour coded ? b. Are these job action cards easily accessible?	

Triage and emergency code system	YES/NO/REMARKS
1. Are you familiar with the term triage? (a) If yes , can you explain?	
2. Who do you think should know about triage ?	Doctor ☐ nurse ☐ Pharmacist ☐ laboratory technician ☐ Emergency Medical Technician ☐
3. Does this health facility use the triage system?	
4. Does the health facility have any emergency code system? a. If yes, what are the emergency codes that are used in your health facility?	

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TRAINING AND DRILLS	YES/NO/REMARKS
1.Have this health facility experienced any disaster in past 5 years/after you have joined? a. If yes, when was the last time that health facility has experienced any disaster? b. If yes, what was the last disaster experienced by this health facility?	
2. Has the health facility designated a person in-charge of training for disaster preparedness? a. If yes, what is the designation of the concerned person?	
3.Have you participated in disaster preparedness training in the last one year? If yes, a. Where was this training given? b. For how long the training was given? c. Which topics were covered?	
4.How frequently training regarding disaster preparedness is given?	
5.Does this health facility conduct mock drills regarding disaster preparedness? If yes, a. How frequent these drills are conducted? b. When was the last drill conducted?	
6.Has the health facility conducted evacuation drill of all staff and patients present at the time of drill?	

7.Do you have any suggestions about training and drills regarding disaster preparedness?

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Communication and Surveillance	YES/NO/REMARKS
1.Does the health facility have a system to communicate with other health facilities, government office or media?	
2.Is there any emergency warning system for disaster within all the departments for this health facility?	
3.Does the health facility have any notification system to notify on-duty and off- duty staff of emergency status?	
4.Is there any single platform (like WhatsApp) on which all the facility and field staff are available for communication and coordination?	

5. Do you have any suggestions about improvement in communication system of your facility?

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STOCKPILE	YES/NO/REMARKS
1.Does the health facility have designated in charge of emergency stock management?	
2. Are the disaster supplies inventoried, secured and labelled as 'FOR DISASTER USE ONLY'	
3. Does the health facility have PPE for all staff ?	

4. Which Personal protective equipment is available ?

1.Gloves

2. Surgical masks

3.Gowns

4.Goggles

5.Facesheild

6.Head cover

7.Shoe cover

8.Respirator

9.Helmet

10.Vest

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SURGE CAPACITY	YES/NO/REMARKS
1. Does the health facility has a mobile team for rescue or rapid response ?	
2. Who are the members of rescue team ?	Doctor ☐ Nurse ☐ Pharmacist ☐ Laboratory technician ☐
3. In past how did the health facility maintained the adequate number of staff during an emergency event?	
4. Does the health facility has a. 24 hrs power supply available ? b. 24 hrs water supply arrangement? c. Mortuary arrangement ? d. Fire alarm system? e. Electricity back up (generator)?	
5. Is ambulance facility available ? If yes, a. Either govt. or private? b. No. of ambulance available? c. Does the ambulance has stretcher and basic life support ?	

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SECTION-3(MS/SMO/EMO/MO)

	YES/NO/REMARKS
1. Does the disaster preparedness plan cover both internal and external disasters?	
2. Does this plan include arrangement for rapid transfer of emergency department to in-patient in emergency crisis?	
3. When was the plan last evaluated and updated?	
4. Does this health facility have disaster/emergency report or register system?	
5. Does the health facility have any separate triage area?	
6. Are triage tags always present in emergency department?	
7. Is the patient count that triggers the activation of triage system defined or not? a. If yes, what is that level?	
8. Does the health facility conduct/participate in epidemiological surveillance at facility and community level to check any spike in any disease?	
9. Does the health facility share the surveillance information with local/state public health agencies?	
10. Can the health facility deal with surge in capacity of sample disposal when faced with emergency?	
11. Does the health facility have the protocol of transportation of suspected samples to another institute?	
12. Are laboratory reports of in-patients reviewed to check any spike in any disease? a. If any spike is noticed, who do you report to?	
13. Is there a system to deal with increased demand of drugs during any emergency? a. If yes, explain.	
14. Does the health facility maintain emergency funds?	
15. Have the health facility used these funds during last emergency crisis?	
16. Did the emergency fund meet the work needs?	
17. Does the health facility have any designated area to enlarge the capacity of receiving patients?	

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18. Which area is planned to be utilized for additional beds for surge capacity?	
19. Does the health facility have enough staff to successfully perform normal services in an emergency crisis?	
20. Does the health facility have proper protocol for referring patient to higher health facility?	
21. (a) total no. of beds? (b) extra no. of beds that could be added?	
22. Does the health facility have oxygen supply (piped/cylinder)?	
23. Does the health facility have system to deal with increased volume of biomedical waste disposal in case of emergency crisis?	
24. Does the health facility have a separate team that deal with post-disaster recovery?	
25. Do you assess the physical and psychological well-being of staff involved in emergency crisis?	
26. Does the health facility provide psychological guidance for victims and medical staff?	
27. Is the Driver trained for basic life support ?	

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SECTION- 4 (Nursing in charge)

	YES/NO/REMARKS
1.Does the disaster preparedness plan cover both internal and external disasters?	
2.Does this plan include arrangement for rapid transfer of emergency department to inpatient in emergency crisis?	
3.Does this health facility have disaster/emergency report or register system?	
28.Does this health facility have any emergency warning system for disaster?	
29.Does the health facility have any separate triage area?	
30.Are triage tags always present in emergency department?	
31.Is the patient count that triggers the activation of triage system defined? (a) If yes, what is that level?	
32.Does the health facility have any designated area to enlarge the capacity of receiving patient?	
33. Which area is planned to be utilized for additional beds for surge capacity?	
34.Does the health facility have oxygen supply (piped/cylinder)?	

35. In your opinion, what can be done to improve the services during an emergency situation?

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SECTION - 5 (Laboratory Technician)

	YES/NO/REMARKS
1.Total number of laboratory Technicians posted in your health facility ?	
2.Are laboratory reports of in-patient and emergency patient reviewed to check any spike in any disease? (a) If any spike is noticed, who do you report to?	
3.Can the health facility deal with surge in capacity of sample disposal when faced with emergency?	
4.Does the health facility have the protocol of transportation of suspected samples to other organization?	

5. By what means the laboratory service will manage to deal with increased influx of patients during a disaster?

6. In your opinion, what can be done to improve the services during an emergency situation?

Signature of Candidate **Signature of Supervisor**

SECTION-6 (Pharmacist)

	YES/NO/REMARKS
1. Total number of pharmacists posted in your facility ?	
2. Do you maintain the stock of emergency drugs and antidotes?	
3. Do you monitor the average daily /weekly/monthly medication demand/usage?	
4. Do you maintain a separate record of high risk medication?	
5. Do you use (FIFO) First In First Out principle?	

6. How does the pharmacy services procure the increase demand of drugs during any emergency crisis?

7. How do you manage the expiry drugs?

8. If drugs are limited, how do you ensure the proper distribution in such situation ?

9. In your opinion, what can be done to improve the services during an emergency situation?

Signature of Candidate

Signature of Supervisor

INFORMED CONSENT

Date: _____

I..... with my full knowledge of the study on **"A STUDY ON DISASTER PREPAREDNESS AMONG HEALTHCARE FACILITIES IN LUDHIANA DISTRICT"** at Dayanand Medical College & Hospital, Ludhiana conducted by Dr. Heema Kashyap, PG Resident in Department of Community Medicine, hereby give my consent of being interviewed, examined and investigated.

I have been explained the implications of the study procedure involved and the possible complications in a language I understand. I also understand that the study is for purpose of medical research and I am willing to extend my full cooperation towards the same.

.....	.....
Signature of the Investigator	Signature/Thumb
Name:	Name:
Date:	Date:

Signature of Supervisor **Signature of Candidate**

अनुमति फार्म

मैं..... अपनी पूरी जानकारी से विषय "A study on disaster preparedness among healthcare facilities in Ludhiana district" दयानन्द मेडिकल कालेज और हस्पताल, लुधियाना में डा हीमा कश्यप, पी. जी. रेजिडेंट, सम्प्रदाय चिकित्सा विभाग, इसके द्वारा पूछताछ, जांच तथा अन्वेषण की सहमति देता/देती हूँ। मुझे मेरी बोलने की शैली में इस अध्ययन की कार्यप्रणाली तथा संभावित समस्या के बारे में विवरण दे दिया गया है। मैं ये भी समझता/समझती हूँ कि ये अध्ययन चिकित्सक अनुसंधान के लिए है और मैं स्वेच्छा से अपना पूरा सहयोग देता/देती हूँ।

अन्वेषक के हस्ताक्षर.....

नाम.....

दिनांक.....

हस्ताक्षर/अंगूठे की छाप.....

नाम.....

दिनांक.....

ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮੈਂ .... ਆਪਣੀ ਪੂਰੀ ਜਾਣਕਾਰੀ ਨਾਲ ਇਸ ਅਧਿਯਨ "A study on disaster preparedness among healthcare facilities in Ludhiana district" ਦਯਾਨੰਦ ਮੈਡੀਕਲ ਕਾਲਜ਼ ਅਤੇ ਹਸਪਤਾਲ, ਲੁਧਿਆਣਾ ਵਿਖੇ ਡਾ ਹੀਮਾ ਕਸ਼ਯਪ, ਪੀ.ਜੀ.ਰੇਜ਼ੀਡੇਂਟ, ਸਮਾਜਿਕ ਚਿਕਿਤਸਾ ਵਿਭਾਗ, ਇਸ ਤਰਾਂ ਪੁਛਤਾਛ, ਜਾਂਚ ਅਤੇ ਪੜਤਾਲ ਦੀ ਸਹਿਮਤੀ ਦਿੰਦਾ/ਦਿੰਦੀ ਹਾਂ।

ਮੈਨੂੰ ਮੇਰੀ ਭਾਸ਼ਾ ਵਿੱਚ ਇਸ ਵਿਸ਼ੇ ਦੀ ਵਿਧੀ ਅਤੇ ਉਲਝਨਾ ਬਾਰੇ ਪੂਰੀ ਵਿਆਖਿਆ ਕਰ ਦਿੱਤੀ ਗਈ ਹੈ। ਮੈਂ ਇਹ ਵੀ ਸਮਝਦਾ/ਸਮਝਦੀ ਹਾਂ ਕਿ ਇਹ ਅਧਿਯਨ ਚਿਕਿਤਸਕ ਖੋਜ਼ ਲਈ ਹੈ ਅਤੇ ਮੈਂ ਆਪਣੀ ਮਰਜੀ ਨਾਲ ਪੂਰਾ ਸਹਿਯੋਗ ਦਿੰਦਾ/ਦਿੰਦੀ ਹਾਂ।

ਜਾਂਚ ਕਰਤਾ ਦੇ ਹਸਤਾਖਰ..... .....

ਨਾਮ... ....

ਮਿਤੀ.... ....

ਹਸਤਾਖਰ/ਅੰਗੂਠੇ ਦੀ ਛਾਪ.....

ਨਾਮ .. ..

ਮਿਤੀ.... ....